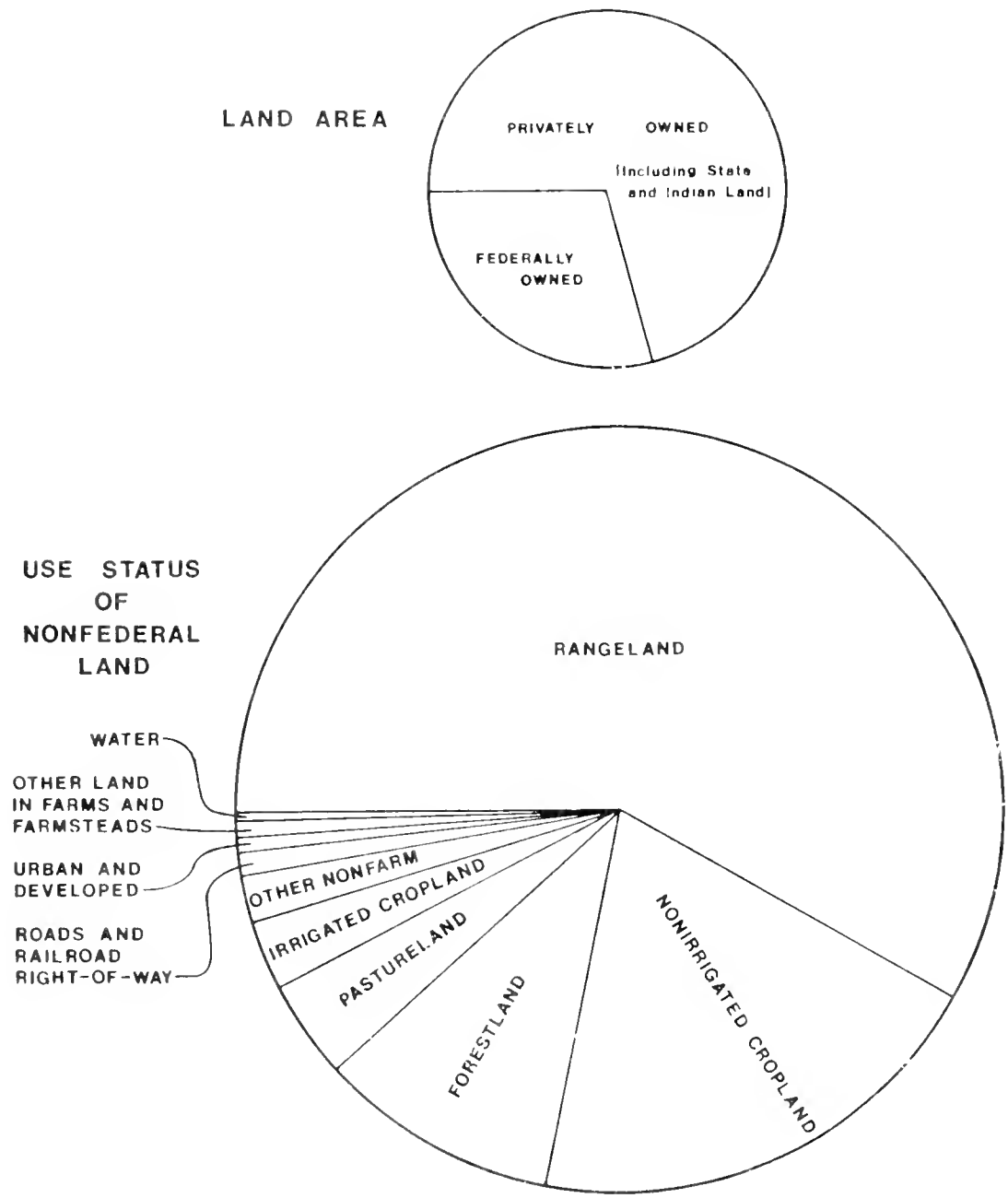
MONTANA CONSERVATION DISTRICTS DIVISION

RESOURCE CONSERVATION PLAN

1981-1985

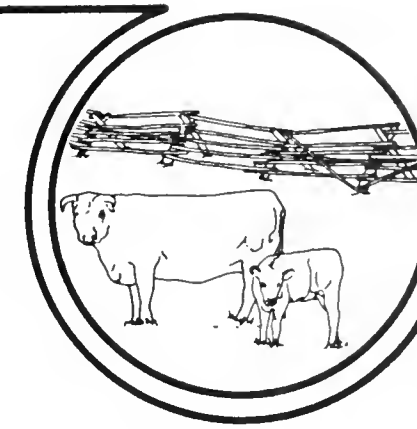
MONTANA'S LAND BASE IN 1977



RESOURCE CONSERVATION PLAN

1981-1985

CONSERVATION DISTRICTS DIVISION
DEPARTMENT
OF NATURAL RESOURCES
AND CONSERVATION
32 S. EWING, HELENA, MT
DECEMBER 1981



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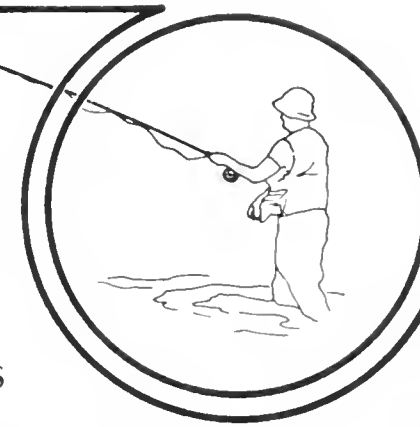
ACKNOWLEDGMENTS

This report was prepared for the Conservation Districts Division of the Department of Natural Resources and Conservation (DNRC) under the direction of Ole Ueland, who this year marks twenty years of service to the Department. The report was compiled by Deeda Richard and edited by Peggy Todd.

The Division acknowledges the guidance and support of the members of the Resources Conservation Advisory Council, who are named in the appendix. Additional assistance was provided by the Department of State Lands, the Agricultural Stabilization and Conservation Service, Forest Service of USDA, the Montana Association of Conservation Districts, Montana's 59 Conservation Districts, and the Agricultural Experiment Station at Montana State University.

Special thanks go to Carole Massman and Frank Culver of DNRC's Special Staff for their advice and cooperation. Susan Mohl typed the report, June Virag did the graphics, Dan Nelson designed the cover, and Don Howard made the layouts. Gordon Taylor supervised production. Also contributing to the report were the staff of the Conservation Districts Division, Kay Maroney, Terry Wheeler, and Parham Hacker.

I. INTRODUCTION



APPROACH

This plan is a natural resource management plan for the Conservation Districts Division (CDD) of the Department of Natural Resources and Conservation (DNRC) which addresses the major concerns and problems on private land identified by Montana's conservation districts (CDs). It is not a total natural resource plan for the state of Montana. It does, however, call for cooperation with state and federal agencies that plan for and manage public and trust lands. In many cases, cooperative agreements are in effect between the conservation districts and these agencies. Therefore the Conservation Districts Division expects that the agencies will cooperate to accomplish the plan's objectives. The duties and policies of the CDD are presented in Appendix A of this report.

The CDD resource management plan could be combined with similar plans from other agencies to contribute to a statewide planning effort. Such a statewide plan is needed to accomplish resource conservation objectives effectively for Montana.

PROBLEM SURVEY

In 1978 CDs were asked to help identify the major resource concerns and problems for their districts. This identification was done with the cooperation and direction of the conservation district supervisors through public participation. This process involved holding 200 public meetings attended by 3,732 people, as well as making presentations to service clubs and Agricultural Stabilization and Conservation committees. Questionnaires were used to gather the information; they were either handed out at the meetings or mailed to the CD members. Each Soil Conservation Service (SCS) field office district conservationist entered the data for each CD on a worksheet (Appendix B). Meeting attendance and questionnaire results are shown in Appendix C.

After the data were entered on the worksheets for each CD, the information was sent to the SCS state office, which then summarized and compiled it for all the CDs. The results are shown as major concerns by conservation district in figure 1, and major concerns in figure 2.

The plan sets objectives for the major concerns; these are shown in the work plan in section III.

PLANNING LEVELS

Under the Resource Conservation Act (RCA PL95-192), the U.S. Department of Agriculture (USDA) was directed to make a continuing appraisal of the soil, water, and related resources on nonfederal land, develop a 5-year program for their conservation, and make annual reports to Congress, until the termination of the law on December 31, 1985. In carrying out the RCA law, USDA cooperates with state soil and water agencies, other appropriate state natural resource agencies, conservation districts, other local units of government, and land users.

Montana laws enacted in 1939 provide for the establishment, administration, and operation of conservation districts for resource conservation. These districts are empowered to plan and carry out measures for the conservation of resources in their jurisdiction. A cooperative agreement established as a result of the Resource Conservation Act is one of the tools used to accomplish this goal. This agreement ensures that resource appraisal continues, that plans responsive to local needs are developed, and that necessary action is carried out.

The Conservation Districts Division of the Montana Department of Natural Resources and Conservation has entered into a joint agreement with the Soil Conservation Service of USDA to develop a plan designed to conserve, protect, and enhance soil, water, and related resources in Montana. A grant provided through the Resource Conservation Act funded the production of the plan.

SOURCES AND STATUS OF ASSISTANCE AND FUNDING FOR CONSERVATION DISTRICTS

Local Sources:

Conservation district supervisors have authority through county commissioners to cause taxes to be levied not to exceed 1.5 mills on all real property within the district to fund district programs. Also, 50 percent of the qualified electors in an area can petition to create a project area. An election must be held for the voters in the proposed project area; a majority vote will result in the creation of a project area. To pay for all or part of the project expenses the regular 1.5 mill levy can be used; part of

FIGURE 1
MAJOR CONCERNS BY CONSERVATION DISTRICT

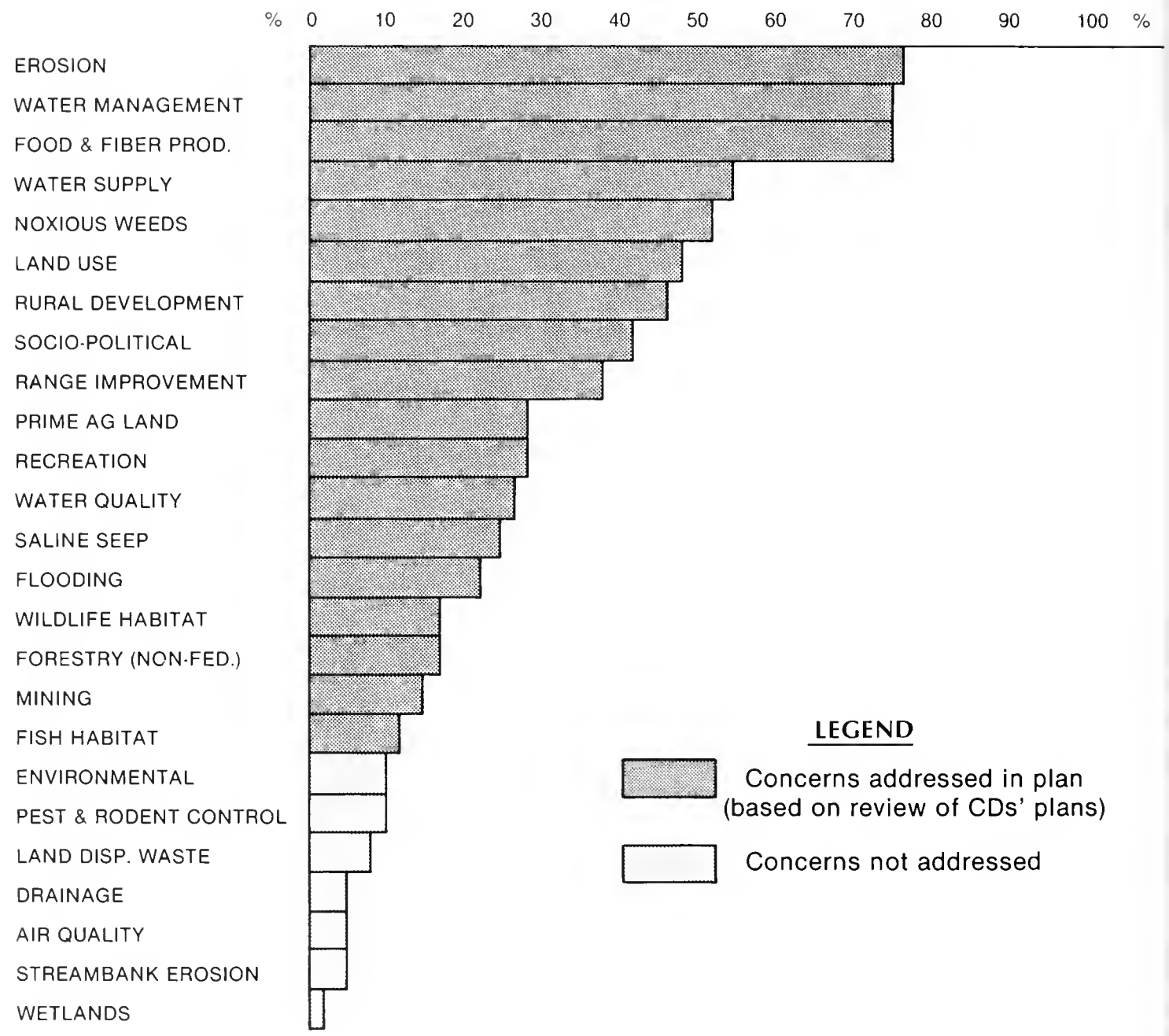
CONSERVATION DISTRICTS (CDs) ↘ / CONCERNS →	SOIL EROSION	IRRIGATION WATER MANAGEMENT	FOOD & FIBER PRODUCTION	WATER SUPPLY	NOXIOUS WEEDS*	LAND USE	RURAL DEVELOPMENT	SOCIO-POLITICAL	NATIVE RANGELANDS IMPROVEMENT	PRIME, UNIQUE & IMPORTANT FARMLANDS	RECREATION	WATER QUALITY	SALINE SEEP*	FLOODING	WILDLIFE HABITAT	FORESTRY (NON-FEDERAL)	MINING	FISH HABITAT	Environmental	Pest & Rodent Control	Land Disposal of Organic Wastes	Drainage	Air Quality	Streambank Erosion	Wetlands
BEAVERHEAD CD	•	•	•	•	•	•	•	•	•	•	•	•		•	•	•	•	•	•		•	•			•
BIG HORN CD	•	•	•	•		•	•	•		•				•							•				•
BIG SANDY CD	•	•	•										•												
BITTERROOT CD		•	•	•		•	•	•		•	•	•			•	•		•	•		•				
BLAINE COUNTY CD	•	•											•									•			
BROADWATER CD	•	•	•		•																				
CARBON CD	•			•		•		•		•															
CARTER COUNTY CD	•		•		•				•																
CASCADE COUNTY CD	•		•			•			•		•	•	•	•	•										
CHOTEAU COUNTY CD	•	•	•		•								•												
CULBERTSON - BAINVILLE CD	•	•	•	•		•	•				•														
CUSTER COUNTY CD	•	•	•	•		•	•	•		•		•					•				•				
DANIELS COUNTY CD	•		•	•					•		•														
DAWSON COUNTY CD	•	•	•	•	•	•			•		•		•				•								
DEER LODGE VALLEY CD		•	•	•	•			•	•								•			•					
EASTERN SANDERS COUNTY CD		•		•	•				•															•	
FERGUS COUNTY CD	•	•	•	•	•									•											
FLATHEAD CD	•	•	•	•	•		•	•				•								•					
FROID CD	•		•			•	•				•														
GALLATIN CD	•	•	•			•		•				•		•											
GARFIELD COUNTY CD	•	•								•		•													
GLACIER COUNTY CD			•	•				•			•														
GRANITE CD	•	•	•								•					•			•	•					
GREEN MOUNTAIN CD					•	•	•								•	•									
HILL COUNTY CD	•				•								•												
JEFFERSON VALLEY CD	•	•	•	•	•	•	•	•	•	•		•		•			•	•	•						
JUDITH BASIN CD	•	•		•	•	•	•		•		•												•		
LAKE COUNTY CD		•			•	•			•	•															
LEWIS & CLARK COUNTY CD	•	•	•	•	•	•	•	•	•	•	•	•		•	•	•		•							
LIBERTY COUNTY CD	•		•		•				•			•	•		•										
LINCOLN CD			•				•	•								•					•				
LITTLE BEAVER CD	•			•		•							•												

*These concerns were not listed on pre-printed worksheets, but Conservation Districts felt they were major concerns in their areas. Each Conservation District was allowed only one of these "others". If saline seep and noxious weeds had been listed, more CD's may have named them a major concern.

CONSERVATION DISTRICTS (CDs) ↓ / CONCERNS →	SOIL EROSION	IRRIGATION WATER MANAGEMENT	FOOD & FIBER PRODUCTION	WATER SUPPLY	NOXIOUS WEEDS*	LAND USE	RURAL DEVELOPMENT	SOCIO-POLITICAL	NATIVE RANGELANDS IMPROVEMENT	PRIME, UNIQUE & IMPORTANT FARMLANDS	RECREATION	WATER QUALITY	SALINE SEEP*	FLOODING	WILDLIFE HABITAT	FORESTRY (NON-FEDERAL)	MINING	FISH HABITAT	Environmental	Pest & Rodent Control	Land Disposal of Organic Wastes	Drainage	Air Quality	Streambank Erosion	Wetlands
LOWER MUSSELSHELL CD	•	•	•	•		•	•	•	•			•		•								•			
MADISON CD	•	•	•			•	•																		
MCCONE CD	•	•	•			•	•	•	•		•														
MEAGHER COUNTY CD	•	•		•	•											•				•					
MILE HIGH CD	•	•	•	•	•	•	•	•	•	•		•		•			•		•				•		
MINERAL COUNTY CD		•	•		•	•	•	•		•					•	•									
MISSOULA CD		•	•		•	•	•	•		•	•	•			•	•			•				•		
NORTH POWELL CD		•	•		•		•	•	•						•			•		•					
PARK CD	•	•	•	•	•	•	•		•		•					•									
PETROLEUM COUNTY CD	•	•	•	•										•											
PHILLIPS CD	•	•	•	•	•	•	•	•	•		•			•			•			•					
PONDERA COUNTY CD	•	•	•		•				•				•												
POWDER RIVER CD	•		•	•	•				•																
PRAIRIE COUNTY CD	•	•	•	•	•			•	•	•															
RICHLAND COUNTY CD	•	•			•			•	•				•	•											
ROSEBUD CD	•	•	•	•		•	•			•							•								
RUBY VALLEY CD		•	•	•		•	•																		
SHERIDAN COUNTY CD	•												•		•										
STILLWATER CD		•	•	•		•	•					•					•								
SWEET GRASS COUNTY CD		•	•	•	•	•	•	•		•	•														
TETON CD		•	•					•					•												
TOOLE COUNTY CD	•		•		•		•		•				•												
TREASURE COUNTY CD	•	•	•	•		•	•			•		•													
UPPER MUSSELSHELL CD	•	•			•																	•			
VALLEY COUNTY CD	•	•		•			•	•			•	•	•	•											
WIBAUX CD	•			•									•												
YELLOWSTONE CD	•	•	•							•															
TOTAL	45	44	44	32	30	29	27	24	23	17	17	16	15	13	10	10	9	7	6	6	5	3	3	3	2

*These concerns were not listed on pre-printed worksheets, but Conservation Districts felt they were major concerns in their areas. Each Conservation District was allowed only one of these "others'. If saline seep and noxious weeds had been listed, more CD's may have named them a major concern.

FIGURE 2
CONSERVATION DISTRICTS' MAJOR CONCERNS



the project can be paid for by a special assessment not to exceed 3 mills on all taxable real property within the designated project area.

Conservation districts have authority to charge fees for services they provide, but this has been done only in special cases.

Historically districts operated equipment from which revenues were derived, but since private contractors now provide many of these services, revenues from this source are limited.

State Sources:

The state legislature in recent years has appropriated $100,000 a year, of which by law 75 percent is distributed according to acreage and 25 percent according to need. However, in place of the $100,000 the 1981 Legislature has allocated 0.5 of 1 percent of the coal tax to be made available to districts for projects based on need. (The Resource Conservation Advisory Council will develop guidelines to allocate the money.) This will amount to approximately $240,600 for 1982 and $275,000 annually for 1983-1985.

The state Renewable Resource Development (RRD) fund is available for district-sponsored projects. Table 1 shows project proposals funded by the 1981 Legislature and table 2 shows reallocation of RRD funds.

TABLE 1. PROJECT PROPOSALS FUNDED BY 1981 LEGISLATURE

Recipient	Amount of Funding	Purpose
Ruby Valley CD	$490,000	East Bench gravity sprinkler project
Cascade and Teton CDs	300,000	Muddy Creek water-quality project
Triangle CD	275,000	Saline seep control
CDD	350,000	Continuation of Rangeland Improvement loan program
CDD	30,000	Leafy spurge control
Water Resources Division, DNRC	350,000	Small water-development loans
DHES	41,000	CDs water-quality project feasibility; project proposals studies
Total	**37,266,642**	**91,164,000**

TABLE 2. REALLOCATION OF RENEWABLE RESOURCE DEVELOPMENT FUNDS BY 1981 LEGISLATURE EFFECTIVE JULY 1, 1983

Type of Project	Percent of funding	Amount of Funding
Water	40	$500,000
Agriculture	20	250,000
Forestry	20	250,000
Water reservations (CDs)	10	125,000
Miscellaneous	10	125,000

The 1981 Legislature passed Senate Bill 409, creating a water development program for Montana to be carried out by the Water Resources Division of DNRC. The Water Development Program will earmark revenue from state-owned projects; 30 percent of the interest from the Resource Indemnity Trust Fund and 0.625 percent of the coal severance tax will go to a water development account. These revenues, about 3.5 million dollars each biennium, will fund water resource projects such as: irrigation systems, saline seep abatement, offstream and tributary storage, canal lining, water-based recreation, streambank stabilization, erosion control, rehabilitation of existing projects, and development of conservation district water reservations.

In addition, the Water Development Program will use the coal severance tax proceeds flowing into the permanent trust fund to back bonds sold to finance water projects. Only if recipients are unable to fully repay project costs will the severance tax proceeds actually be depleted. The legislature must approve each project before bonds can be sold. Also, 15 percent of the earnings from the permanent trust fund are reappropriated to the trust fund to offset any depletion of proceeds going into that trust fund. The Water Development Program is of specific interest to conservation districts because the program will be providing two engineers beginning in fiscal year 1982 for assistance to CDs to improve and implement water reservation plans on the Yellowstone River. The Water Development Program will also be providing small water development grants and loans beginning July 1, 1983. It is anticipated that the CDs will be closely involved in the grant and loan portion of the program.

The Forestry Division of DNRC maintains a tree and shrub nursery in Missoula that provides stock for shelterbelt plantings for a nominal fee.

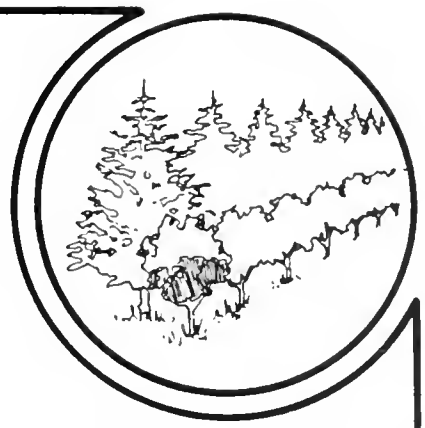
The Montana Cooperative Extension Service provides resource conservation education and information assistance to districts.

Federal Sources:

Most federal assistance comes from the U.S. Department of Agriculture. The Soil Conservation Service provides technical help to districts by cooperative agreement. SCS resource conservation programs are available, such as: the Great Plains Contract Program, Watershed and Flood Prevention (PL566) programs, Resource Conservation and Development programs, Rural Abandoned Mine Program, Plant Materials Center, Soil Survey, Snow Survey, and the Inventory and Monitoring Program. The Agricultural Stabilization and Conservation Service cost-sharing programs and the Farmers Home Administration conservation loan programs make important contributions to resource conservation.

All these sources contribute a considerable amount of funding to resource conservation and development in Montana, and, with the investments of ranchers and farmers, provide a substantial financial base. The demand and opportunity exists to expand these programs; however, if such expansion is not possible with the help of the Resource Conservation Advisory Council, the National Association of Conservation Districts, and the Montana Association of Conservation Districts, the Conservation Districts Division will work to maintain present funding and assistance levels. If federal funding is not available, more state support will be needed to fund the programs.

II. Major Concerns Dealt with in the Plan



After an examination of the CDs' long-range plans published since 1978, it was determined that the first 18 concerns identified by the CDs shown in Figure 1, closely parallel the concerns addressed in the CDs' local long-range plans. Therefore the CDD will be addressing those 18 concerns in this section. Each concern is dealt with separately, although some are so closely interrelated that the means of resolution may be identical. For every concern a brief statement of "Situation" explains the current conditions. A statement called "Concerns" follows. Then the proposed CDD objectives are listed, along with the reason for their selection.

SOIL EROSION

Situation

Soil is being blown and washed from Montana's land at a rate that threatens productivity. Amounts of erosion depend on several factors: soil erodibility, soil cover, amount of soil disturbance, snowmelt conditions, amount and intensity of rainfall, volume of runoff, distance between protected areas, wind speed, direction, and duration. There are areas of natural or geologic erosion that cannot be economically or effectively controlled permanently. Unprotected croplands are particularly vulnerable to erosion, especially wind erosion. Pasture, hay, range, and forest lands that have a good cover are less susceptible.

It is estimated that 10 million acres of land in Montana have a high degree of erosion. Of Montana's 15 million acres of cropland, about 2 million acres (13%) are eroding from wind and water at a rate above that considered tolerable, called the "T" value, which varies with different soil types. Of the state's 48 million acres of range, forest, and pasture, 8 million acres (16%) are losing soil from water erosion at a rate above tolerable limits. In comparing these soil loss rates, the soil types for pasture, range, and forest land generally have a tolerance limit much less than the soil types for cropland. Another major difference in soil loss from range and forest land is that much of it may be natural geologic erosion which cannot be controlled; however, nearly all erosion on cropland is controllable by some conservation means (SCS 1977).

Wind causes most of the erosion on Montana's cropland. In 1980 Montana was ranked as having the second worst wind erosion problem in the nation (SCS 1980). An average of 417,000 acres yearly are being damaged by wind erosion. Montana's most critical wind erosion occurs in the north-central "triangle" area, and extends easterly across the Highline. Other critical wind erosion areas are in east-central and south-central Montana (SCS 1977).

Many of the conservation districts have documented soil erosion problems in their district long-range plans. Missoula CD is one such district, which documents its soil erosion problem as follows. Missoula County has 15,387 acres of dry cropland; 1,162 acres (16%) are suffering from sheet, rill, and gully (water) erosion. Of the 34,293 acres of irrigated cropland, 1,858 acres (5.4%) are being eroded by water. There are 81,720 acres of rangeland in Missoula County and 2,118 acres (2.6%) have water erosion. Forestland in the county encompasses 1,158,327 acres and 5,214 acres (.45%) are affected by sheet, rill, and gully erosion. There is little wind erosion in Missoula County (Missoula Conservation District 1981). Dawson County CD, on the other hand, does have wind erosion problems identified in its long-range plan. Of Dawson county's 391,206 acres of dry cropland, 8,400 acres (2.1%) are being affected by severe wind erosion (Dawson County Conservation District 1980).

Conflicts in management of the soil resource have resulted in poor use of the land. Oftentimes landowners realize they have soil erosion problems, but not all landowners nor the public are fully aware of the effects and control of soil erosion. Often soil erosion controls only involve a change of management practices. Many solutions

are possible: use of flexible, minimum, and no-till cropping systems to supplement crop-fallow systems, improved crop varieties for no-till crop systems, grassed waterways, windbreaks and tall wheatgrass barriers, and willow plantings and alternate livestock watering systems for streambank protection.

Concerns

Water and wind remove topsoil from Montana's land and deposit it on other land or in lakes, reservoirs, streams, and rivers. Not only is the productive capability of the land that has lost the topsoil reduced, but if topsoil reaches water, the quality of the water is reduced. Sediment can deposit biological and chemical pollutants in water, further degrading water quality.

Soil erosion control methods are available; they often require short-term capital investments, and mainly offer long-term capital returns. The landowner is not always compensated in the short-term for his erosion control installations and management changes. However, the public benefits from the resultant maintenance of long-term soil productivity and improved water quality.

Objectives

A) To continue soil surveys for Montana the CDD will assist CDs to secure funds for work on their county soil surveys. See Part A, Objective 1 in the Work Plan.

Rationale: Ranchers, farmers, and forestland owners will benefit from current soil surveys that give data on soil depth, slope, stability, and composition.

B) To complete soil surveys in Montana the CDD will seek funds to implement the Montana Soil Survey Plan. The plan, compiled by the Montana Soil Survey Committee, will take 18 years to complete, at a cost of $525,000 annually beginning in Fiscal Year 1984. See Part B, Objective 2 in the Work Plan.

Rationale: Ranchers, farmers and forestland owners will benefit from current soil surveys that give data on soil depth, slope, stability, and composition.

C) To help begin 2 soil erosion control projects. Projects will be considered in the Bitterroot, Beartooth, or Headwaters Resource Conservation and Development (RC&D) areas and in conservation districts. See Part A, Objective 3 in the Work Plan.

Rationale: These RC&D areas and districts have identified several projects in their resource conservation plans. Critical areas identified in these plans need treatment and the RC&Ds and CDs are prepared to address such problems as soil erosion.

D) To increase the amount of funds available for conservation projects through the Agricultural Conservation and Stabilization Service Long Term Agreement cost-share programs from $3,500 per year to $5,000 per year, per contract. See Part B, Objective 21, of the Work Plan.

Rationale: The Long Term Agreements are popular incentives for applying conservation practices. Often, however, the $3,500 limit does not cover the cost of soil conservation installations.

E) To increase the total amount of funds available to Montana from Long Term Agreement cost-share programs the CDD will request USDA to make a 15 percent increase in funds. Long Term Agreement funds available for Fiscal Year 1981 total $564,000 for the State of Montana. See Part B, Objective 22, of the Work Plan.

Rationale: The Long Term Agreements are popular incentives for applying conservation practices; however, there are not enough Long Term Agreement funds to cover costs of all proposed projects.

F) To plant and improve shelterbelts for the prevention of soil erosion and the provision of wildlife habitat. The CDD will encourage CDs to participate in the Montana Interagency Tree or Shrub Improvement Study (MITOSIS) to further the use of shelterbelts. The MITOSIS program is cooperatively run by the Forestry Division of DNRC, the SCS, and other forestry agencies. The program is intended to find superior tree and shrub species for field barrier and environmental plantings. CDs can assist in collecting superior seed stock and finding cooperators interested in running a planting test area. See Part B, Objective 23, of the Work Plan.

Rationale: Many shelterbelts have been removed from the Montana plains and many areas have never been protected by shelterbelts. These fragile areas subject to soil blowing need the protection such plantings can provide. Also tree and shrub plantings provide wildlife habitat and if planted along streams provide fish and wildlife

habitat, streambank protection, and water quality improvement.

G) To apply soil and water conservation to the land. The CDD will encourage CDs to annually review their conservation plans with their cooperators. See Part B, Objective 24 of the Work Plan.

Rationale: Conservation plans, when properly followed up, can give conscientious attention to soil and water conservation.

IRRIGATION WATER MANAGEMENT

Situation

Irrigation water is vital to Montana. Over 95 percent of the water withdrawn from Montana drainages is used for irrigation. More than 2.5 million acres in the state are fully or partially irrigated. Total water use for irrigation amounts to 12.4 million acre-feet of water over a six-month irrigation season each year. Surface water provides 99 percent of the irrigation water; 1 percent comes from ground water (DNRC 1975). Nearly 80 percent of Montana's irrigated land is in hay or pasture. Other major irrigated crops include small grains, corn sillage, sugar beets, beans, and potatoes (SCS 1980).

Although gravity ditch and lateral systems have been by far the most extensively used, sprinkler systems are becoming more and more popular, using easily portable aluminum pipe with pumps or gravity feed drawing from streams, ponds, or wells (DNRC 1975). Where gravity flow sprinkler systems can be used they save substantial amounts of electrical power. In many places in Montana there is sufficient fall to generate the pressure needed. In Ravalli County five such projects have repaid their cost by irrigating several thousand acres efficiently with almost no power input. Drip systems are available that do not require high-pressure application of water. Because water is delivered slowly, less water is lost by evaporation or runoff. Both the water and energy used by a drip system is about 50 percent of conventional systems (MHD 1977).

Inefficient irrigation water delivery and application is often a problem. It is estimated for Montana that only 47 percent of the water diverted actually reaches the farm. Of this 47 percent, 52 percent is consumed by the crop; the other 48 percent is lost because of delivery and on-farm inefficiencies (DNRC 1975). However, this situation can be improved. For example, in the Montana portion of the Missouri River Basin, overall irrigation efficiency is a poor 20 percent. If an additional 600,000 acre-feet of irrigation water were provided by implementing structural and management improvements, reservoir storage for late season irrigation would result and overall efficiency could be increased by 35 percent for a total efficiency of 55 percent (Missouri River Basin Commission 1980). A further look at irrigation water management shows that one-fourth of the irrigated lands in Montana do have adequate on-farm irrigation systems but only half of these lands receive good irrigation water management (SCS 1978).

The water saved by good irrigation water management can be put to several beneficial uses depending on the area's needs and the water rights in the area where the water savings are made.

Concerns

Irrigation efficiency in Montana needs to be upgraded. Even though water supply may be adequate, if irrigation methods are ineffective, water will be wasted. Managerial as well as structural improvement is recommended by the CDs. Increased use of gravity flow sprinkler systems and drip irrigation is needed to conserve water and energy.

Objectives

A) To provide increased assistance to irrigation operators for irrigation water management training and irrigation systems improvement. The CDD will support efforts of the Montana Cooperative Extension Service and SCS to provide increased irrigation assistance; the CDD will also assist the Cooperative Extension service to publicize its irrigation scheduling models. See Part B, Objective 25 of the Work Plan.

Rationale: Irrigators need assistance with applying current irrigation technologies in order to improve their efficiencies.

B) To improve irrigation efficiency information systems the CDD will encourage interested CDs to develop their ability to test and monitor irrigation efficiency, including delivery and applica-

tion structures and equipment. See Part B, Objective 26 in the Work Plan.

Rationale: Irrigators need assistance with applying current irrigation technologies in order to improve their efficiencies.

FOOD AND FIBER PRODUCTION

Situation

The production of food and fiber is a broad subject and encompasses all of Montana's resources. Future food and fiber production is dependent on the proper care of our soil, water, agricultural land and forest land. However, these particular resources are addressed in other sections of this plan; in following the conservation districts concerns this section will address increased costs and increased energy consumption as it relates to food and fiber production in Montana.

Closely tied to the problem of increasing costs of food and fiber production is increased energy consumption on the farm and loss of productive land (see Land Use Changes section for more information on loss of productive lands). To decrease production costs and assure a continued source of food and fiber, in light of decreasing fossil fuel supplies, the long range solution must involve a transition to a food production system that is minimally dependent on fossil fuels.

Quenton M. West, administrator of USDA's Economic Research Service, notes, "while we have about doubled farm output in the last 30 years, we have more than quadrupled our fuel consumption—so that farm output per gallon of fuel has declined by half" (MHD 1977). It is estimated that U.S. agriculture could reduce energy consumption 20-30 percent by substituting alternative production methods by using machinery more efficiently (MHD 1977).

In Montana expenditures on fossil fuel for agricultural production have increased dramatically. From 1964 to 1974 agricultural expenditures for petroleum products increased by 76 percent, and expenditures for commercial (synthetic) fertilizers rose by 418 percent (U.S. Department of Commerce 1969, 1974). Table 3 shows the amounts spent by Montana agricultural producers for fossil fuels or fossil fuel-related products. Irrigators who use electrically powered systems can expect an increase of 429 percent in the price of electricity, if a current application for rate increase to the Public Service Commission by Montana Power Co. is accepted (Docket No. 80.4.2 Phase II 1981).

TABLE 3. FOSSIL FUEL-RELATED COSTS FOR AGRICULTURAL PRODUCTION IN MONTANA

	1964	1974
Gasoline	$19,858,653	$30,491,000
Diesel oil	5,999,430	15,142,000
LP gas, butane, and propane	976,763	2,472,000
Motor oil, grease, fuel oil, and kerosene	2,965,605	4,374,000
Commercial (synthetic) fertilizer	7,466,191	38,685,000
Total	**37,266,642**	**91,164,000**

Source: U.S. Department of Commerce, 1969, 1974.

In Montana crop and livestock production involve two-thirds of the state's land area, but only consume 4.4 percent of the state's energy (MHD 1977). Thus, the total impact of energy conservation in Montana's agricultural sector will be minimal. However, the benefits to agriculturalists in decreased costs from energy conservation make the effort worthwhile to the producer.

The reasons for increased agricultural energy consumption and costs are: higher labor costs, increased farm size, more use of marginal lands, and increased demand for energy-intensive crops by a growing population. Also causing increased energy consumption are declines in crop diversity, soil fertility, and quality of soil structure.

A suggested energy savings strategy would involve the following elements. Fertilizer and pesticides consume 44 percent of the energy used in Montana's agriculture—synthetic fertilizer use could be reduced by use of legumes for fertilizer in summer fallow areas, and use of manure where readily available. Field research could determine other methods of using fertilizer for energy savings (soil and plant tissue testing, synthetic and nonsynthetic nitrifying inhibitors, spring fertilizer application, biological controls, and natural processors). Field operations consume 23.3 percent of Montana's agricultural energy, and farm vehicles consume 22.8 percent. Efficient transportation patterns can be established by analyzing the marketing distribution of specific crops. Rail transportation can be used more and farm deliveries can be synchronized with farm shipments to save trips. Also, using machinery that is precisely scaled to the job, running at efficient speeds, and properly maintained, could reduce fuel consumption by 10 percent in Montana. Research is needed on other methods to reduce energy consumption by farm vehicles and field operations. These methods include appropriate coupling of machineries, spring plowing, and reduced till or no-till operations. Other farm operations consume 9.5 percent of the total agricultural energy used. These activities include: irrigation, crop drying, milking and milk cooling, heating, cooling, and ventilation of animal shelters, and water heating (see Irrigation Water Management section).

It will be necessary to develop ecologically sound and energy sufficient farms to reduce long-range costs. Appropriately scaled farms can grow a mixture of livestock and crops adapted to local soil and climactic conditions. In addition local industries can be developed to use nonforage crops. Low energy farm activities lend themselves to wind, solar, geothermal, and biogas applications. Alcohol is a source of renewable energy that uses wheat and corn; however, a balance will have to be maintained betwen alcohol production and food and fiber production.

Concerns

Agriculturalists are experiencing increasing costs mainly due to increased dependence on high priced fossil fuels. In order to assure continued food and fiber production agricultural systems must decrease their dependence on the shrinking supplies of fossil fuels and develop more energy efficient operations.

Objectives

A) To increase the use of renewable energy in agricultural production. The CDD will encourage CDs to find cooperators interested in developing small-scale, decentralized energy production projects. Emphasis will be placed on projects that convert pump systems to gravity irrigation systems. The cooperator or CD with such a proposed project can apply for a grant from the Alternative Renewable Energy Sources Program of the Energy Division of DNRC. See Part B, Objective 27, of the Work Plan.

Rationale: Incentives are needed to make a transition in agriculture from nonrenewable to renewable energy sources. These projects can also serve as demonstrations of innovative renewable energy applications.

B) To further research on the application of energy conservation in Montana agricultural production. The CDD will encourage the Montana Agricultural Experiment Station to carry out research in agricultural energy conservation and work towards application of such research. See Part B, Objective 28, in the Work Plan.

Rationale: Montana needs agricultural energy conservation technology.

C) To decrease costs of agricultural production the CDD will encourage the CDs and SCS to design conservation plans to reduce long range costs by lowering consumption of synthetic fertilizers and fossil fuels. See Part B, Objective 29 in the Work Plan.

Rationale: Purchase of synthetic fertilizers and fossil fuels is the principal expense to agriculturalists. Conservation plans can be designed to conserve or find alternate sources of fertilizers and fuels. This would be a direct benefit to the producer and a benefit to the public.

WATER SUPPLY

Situation

The three major river basins in Montana, the Columbia, the Missouri, and the Yellowstone, have a total outflow averaging nearly 44 million acre-feet per year. In addition to the streamflows of the three major river basins the state has over 1,500 natural lakes and more than 60,000 reservoirs (DNRC 1976).

Water supply is dependent upon the watershed characteristics, the amount of precipitation within the watershed and the amount of water that can be stored along Montana's waterways. There is a large variation in seasonal and annual flows. As a result, water supply shortages and drought are experienced at some times in some areas of the state.

Drainages with localized water shortages, especially during late summer months, include but are not limited to the Powder, Tongue, Bitterroot, Madison, Gallatin, Jefferson, Big Hole, Smith, Dearborn, Sun, Milk, and the Mussellshell. The Jefferson Valley CD Long Range Plan, for example, identifies 6 streams totaling 107 miles in length that have dewatering problems.

Demands for Montana's water are increasing, and water availability is becoming crucial for agricultural production. Claims for large amounts of water for industry, hydropower, and maintenance of water quality and fisheries may overtake the needs of agriculture. Cooperation between all water users is vital in establishing multiple-use water projects.

The Montana Water Use Act provides that governmental bodies such as conservation districts can reserve water for future beneficial needs and can receive a priority date when such reservations are granted. Districts must give water reservations high priority in their planning activities. A development plan must be submitted with an application for water reservation. After the reservation is granted, the Board of Natural Resources and Conservation requires the submission of a comprehensive plan within three years. The plan must identify in some detail where the water will be used, where the diversions and storage will be made, the planned dates for development, and a demonstration of diligence toward implementation of the plan, based on economic and technological advancements. Such plans are especially needed by the CDs along the Yellowstone River to maintain their water reservations.

Concerns

Present and future requirements for agricultural water must be met. Increased surface storage is needed to meet future agricultural water requirements. Also CDs will need additional assistance if they are to take advantage of the water reservations available to them.

Objectives

A) To provide incentives for water supply improvement projects the CDD will continue its attempts to secure $112,000 biannually as a state match for PL566 Watershed Project Planning. The PL566 program involves construction of multiple use water projects. The CDD will support efforts of Congress to provide sufficient federal funds for the rest of the project costs. See Part A, Objective 4 in the Work Plan.

Rationale: The PL566 watershed planning must be continued to provide incentives for planning of multiple use water projects.

B) To make loans for water development projects the CDD will work with the Water Resources Division of DNRC to carry out the water development loan portion of the Water Development Program. See Part A, Objective 30 of the Work Plan.

Rationale: Incentives are needed for further development of Montana's water supply.

C) To assist the 14 CDs along the Yellowstone River with their water reservations implementation plans; the CDD will work with the Water Resources Division of DNRC to carry out the water reservations implementation portion of its Water Development Plan. Two engineers will be available to assist CDs beginning September, 1981. The implementation plans are to be submitted to the Board of Natural Resources and Conservation by December 15, 1983. See Part A, Objective 31 of the Work Plan.

Rationale: The CDs need to secure a future source of water for agricultural production.

D) To assist 25 CDs in the Clarks Fork and Missouri River Basins to research water availability, and if possible, to secure water reservations; the CDD will work with the Water Resources Division, DNRC to carry out this objective. See Part A, Objective 32 of the Work Plan.

Rationale: The CDs need to secure a future source of water for agricultural production.

NOXIOUS WEEDS

Situation

Noxious weed infestation is increasing statewide and is a serious threat to Montana's cropland and rangeland resources. It is estimated that loss of production caused by noxious weeds is costing the state a total of 100 million dollars per year (Montana Department of Agriculture 1981). Many of the CDs' long-range plans identify problem weed species and infested acreages. Estimated acres of noxious weed infestation in Montana are shown in table 4.

TABLE 4. NOXIOUS WEED INFESTATION IN MONTANA, 1978

Weed	Affected Acreage
Canada thistle	1,038,546
Field bindweed	278,730
Russian knapweed	57,407
White top	62,635

Source: ASCS, 1978

Note: In 1979, leafy spurge infestations affected 548,323 acres.

In 1980 individual operators paid 22.5 million dollars for noxious weed control (Montana Department of Agriculture 1981). Proper tillage practices on cropland can be effective in controlling weeds; however, infested areas on rangeland are often inaccessible and difficult to treat mechanically or chemically. Proper range management will help to control noxious weed problems. Biological controls offer some possibilities for weed control in inaccessible areas but increased research is needed in the state.

The 1969 Montana Weed Law was enacted to minimize the prennial noxious weed problem. Every county now has a weed district with boards to administer the noxious weed law. The law lists five noxious weeds: Canada thistle, leafy spurge, wild morning glory (field bindweed), white top, and Russian knapweed. Counties can add to this noxious weed list if they wish. Some weed districts have problems with financing weed control programs, hiring and retaining well qualified personnel, and carrying on a sufficient educational program for their districts (Montana Committee for Rural Development 1979).

Concerns

Noxious weed infestation is degrading the quantity and quality of Montana's cropland and rangeland. There is lack of sufficient research and technology on biological weed control in Montana. Furthermore, some local governments (weed districts) do not have the resources to deal effectively with their noxious weed problems.

Objectives

A) To provide loans for weed control the CDD will include weed control loans in Rangeland Improvement Loan Program packages (see Rangeland Improvement section). See Part A, Objective 5 of the Work Plan.

Rationale: Incentives to control noxious weeds must be provided in order to alleviate the problem.

B) To control noxious weeds the CDD will provide funds for demonstrating the effectiveness of TORDON in controlling leafy spurge. Thirty demonstration plots will be set up throughout Montana; $1,000 is available from the Renewable Resource Development Funds for each plot; projects will run for 5 to 10 years. See Part A, Objective 6 of the Work Plan.

Rationale: Many farmers and ranchers are unaware that TORDON will, with proper application and management, eradicate leafy spurge.

C) To increase the amount of information available on weed control the CDD will support funding of the Montana Experiment Station for research and education projects on weed control for Montana, with special emphasis on biological controls. See Part B, Objective 33 of the Work Plan.

Rationale: Research on weed control must be accelerated. Research is especially needed on biological controls in order to control weeds on rangeland and in areas where water pollution may occur if herbicides are used.

D) To increase efficiency of local weed control programs the CDD will encourage CDs to coordinate weed control activities with their local weed districts. See Part B, Objective 34 of the Work Plan.

Rationale: With districts and the weed control boards working more closely together, noxious weed control programs will be more effective and better accepted.

CHANGES IN LAND USE

Situation

Changes in land use are happening every day in Montana. Those that particularly concern farmers, ranchers, foresters, and the people who use their products are the changes that take agricultural and commercial forest land out of production permanently. Probably no one is more aware of the consequences of converting agricultural land and commercial forest to other uses than is the farmer, rancher, or forester (see Forestry section).

This problem has received national attention. (Farmlands Preservation 1980). With a ready reserve of 40 million acres of cropland in the U.S. that is dwindling at the rate of 3 million acres a year, it should be apparent that it will not be long before we reach a point when we will have no reserve land. It will then be too late for remedial measures. Although American agriculturalists are respected worldwide for their skill at producing maximum yields per acre, there is a limit to how much a given piece of land can produce, even with the most advanced and intensive methods. Production cannot be forced upward indefinitely on a limited land base.

Most of Montana's land-use change has occurred in Flathead, Missoula, Ravalli, Gallatin, Yellowstone, Cascade, Lewis and Clark, and Lake counties. Taking Missoula County as an example, nearly half of the county's best agricultural land has been subdivided and is no longer in production, according to the Missoula County Subdivision Report by the Environmental Information Center (EIC 1980). Since mid-1974, 37,182 acres in the county have been subdivided. Forty-eight percent of the 7,552 acres of land in Missoula County classified by SCS as prime agricultural land has been subdivided. Of the 4,672 acres of the county classified as important agricultural land, 33 percent has been subdivided. A total of 42 percent of Missoula County's 12,353 acres of prime and important farmland has been lost to residential development.

The National Agricultural Lands Study released in January 1981 warned that the U.S. is facing a land crisis in the next decade, unless policies are changed to stop the sprawl of suburbia, shopping centers, highways, and other development over productive croplands. In a speech at the National Agricultural Lands conference in Chicago in February 1981, Agriculture Secretary John R. Block urged state and local governments, with federal support, to begin steps to stop farmland conversions. "In the next 20 years we cannot realize a 60-85 percent increase in demand for U.S. agricultural products while urbanizing 3 million acres of productive land each year and maintaining current low productivity rates."

Montana farmers and ranchers need to join with others nationwide to recognize and work for solutions to the problem of loss of productive land. Several potential solutions are available: land banking, agricultural zoning,

and the acquisition of development rights (conservation easement) to agricultural land by local governments.

Concerns

In Montana, conservation districts are the logical entity to act, with local planning boards and other local governmental agencies, to mitigate this problem.

Objectives

A) To provide local level incentives to keep productive land in production. The CDD will assist interested CDs with the development of agricultural preservation programs. See Part A, Objective 7 of the Work Plan.

Rationale: The rate of farmland loss in some districts is so critical that the ability of farmers and ranchers to maintain their operations under pressure of increased costs is threatened. Programs and incentives to preserve agricultural land in these areas are needed.

B) To increase support of farm and ranch organizations and real estate agencies for preservation of prime agricultural land. The CDD will encourage CDs to incorporate preservation of agricultural land in their education and information programs and to emphasize reaching farm organizations and real estate agencies. See Part B, Objective 35 of the Work Plan.

Rationale: Farm organizations and real estate agencies can influence where development takes place. Their support is needed in placing development on lands that are not agriculturally productive.

RURAL DEVELOPMENT

Situation

Agricultural land must be considered as a natural resource necessary to the well-being of the citizens of Montana, and as such, it must be guarded from loss. Changes in land use present a serious constraint on agricultural production throughout the U.S. From 1967 to 1975, 30.5 million acres were lost to agriculture nationwide. In Montana 350,000 acres of agricultural land were converted to urban, built-up, transportation, and water uses from 1967 to 1977 (National Agricultural Lands Study 1980). In the past two decades, outmigration from urban areas, speeded by severe problems in the cities, has turned thousands of acres of prime farmland into one-acre "country estates." Other losses of agricultural land are due to strip mining, commercial development, highway easements, airports, and other uses.

Expansion of urban development into rural areas causes many problems: demand for increase in public services such as roads and utilities, conflicts between farm and urban activity, and depletion of land that might be held in reserve for the future. Often "leapfrog" development puts pressure on farmers to sell, or makes it difficult for them to conduct their normal activities such as spraying crops or moving farm machinery.

Inflated land prices sometimes make it financially unprofitable to pass a farm on from one generation to the next; this situation threatens the future of the family farm or ranch. Some states, Wisconsin for example, mitigate the problem by allowing limited sale of agricultural land for homesites on a sliding scale that depends on the size of the principal holdings. This solution makes it possible for farmers and ranchers to benefit from escalating land prices without sacrificing extensive crop and pasture lands to development. Canada's Saskatchewan Province uses a land-bank system that allows the government first purchase rights on farmland when it is sold; it is then leased to the operator with an option to buy; Oregon provides tax benefits as one facet of its comprehensive Agricultural Lands Protection Plan, which has a farm-zone mechanism established by the Oregon legislature. Whatever solution is decided upon, retention of productive land in its present use for cropland and pasture is basic to food and fiber production.

Concerns

Loss of Montana's agricultural land is an urgent problem, and so is loss of rangelands. Traditional family farm and ranch operations are also threatened.

Objectives

A) To expand "outreach capacity" by 15 percent for education in estate planning. The CDD will request the Montana Cooperative Extension Service to carry out this objective. See Part B, Objective 36 of the Work Plan.

Rationale: More ranchers and farmers need to be educated in estate planning so they will be able to keep their family operations. Often these operations are sold for nonagricultural uses to pay for taxes.

SOCIO-POLITICAL CONCERNS

Situation

Landowners need to exercise some control over local resource situations; CDs are expected to influence legislators and help to meet local resource conservation needs. CDs have recently acquired new responsibilities. Some of these new tasks are carrying out the Natural Streambed and Land Preservation Act of 1975 (SB 310), acting as the local management agency to protect and maintain water quality, and making and implementing water reservations. The CDs may sponsor water development projects under the Water Development Program.

The CDs have long been considered agricultural interest groups. However, with CDs' added responsibilities their role is changing and they are no longer involved only in agricultural activities. When examining any of the districts' long-range plans it becomes clear that the CDs work with a wide variety of resources. The resources covered in this plan are often the resources covered by a district's plan. These local level long-range plans are the key to making the public aware that CDs benefit everyone by protecting Montana's resources.

Concerns

Several problems face the CDs. They need more active local leadership; another serious concern is that their legislative authority is not being used fully. Furthermore, the CDs need to expand their agricultural oriented image through their long-range planning activities.

Objectives

A) To train supervisors and CD employees for their responsibilities the CDD will hold annual training workshops for CD supervisors and employees. See Part A, Objective 8 of the Work Plan.

Rationale: These training workshops will help the supervisors to become more effective in managing CD programs and taking full advantage of their authority.

B) To make the public, resource agencies, and legislators aware of CD projects and functions, the CDD will hold a conservation education tour of CD projects. See Part A, Objective 9 of the Work Plan.

Rationale: This tour will help get public support for CD projects and programs.

C) To educate supervisors on operations of a district the CDD will develop a procedure manual for CD supervisors and CD employees. See Part A, Objective 10 of the Work Plan.

Rationale: Supervisors (and CD employees) need a current document that will aid them in managing their programs.

D) To plan for resource conservation on the local level the CDD will assist CDs with their long-range (5-year) plans by developing updated guidelines for planning activities. See Part A, Objective 11 of the Work Plan.

Rationale: CDs are authorized by law (MCA 76-15-402) to develop and publish comprehensive soil and water conservation plans for lands in the district.

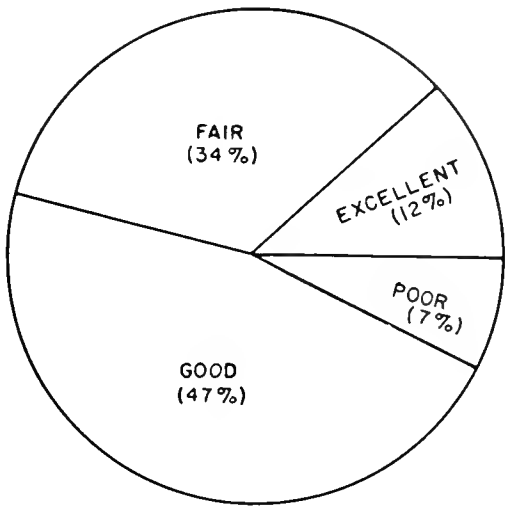
E) To facilitate a comprehensive statewide resource conservation planning effort the CDD will encourage the Resource Conservation Advisory Council to pursue such an effort. See Part B, Objective 37 of the Work Plan.

Rationale: Currently any resource planning is fragmentary and carried out by individual agencies. A statewide planning effort would avoid duplication.

Situation

About 65 million acres in Montana is rangeland or woodland that is suitable for grazing. This range is the main resource for Montana's livestock production industry. Range also makes important contributions to the state's well-being through water production, recreation areas, and wildlife and fish habitat.

It is estimated that 41 percent of Montana's rangeland is in less than good condition (DNRC 1977). Figure 3 shows the condition of state and private rangeland in Montana. Montana's rangelands are producing at only 59 percent of their potential (DNRC). Montana's rangeland has historically been abused through overgrazing and mismanagement. Range management specialists estimate that range conditions may be reasonably increased by one condition class. This increase, when converted to dollars, could represent an increased income of $1.40 per acre to the rancher (Montana Committee for Rural Development 1979). Further range improvements will result in an increase in production on range and pastures, reduction in soil loss from wind and water erosion, water quality improvement, and wildlife habitat increase and improvement. Examples of these range improvements are planned grazing systems, rest rotation, deferred grazing, fencing, development of improved varieties of grasses, reseeding, water development, fertilizing, water retention practices, and in some cases, weed, brush, and scrub timber control.



SOURCE Montana Rangeland Resource Program

FIGURE 3
CONDITION OF STATE AND PRIVATE RANGELAND IN MONTANA IN 1976

From 1975 to 1977 approximately 887,144 acres of rangeland were converted to cropland (DNRC 1977). Often this land is best suited to rangeland uses and when the protective grass cover is plowed under the land is subject to wind and water erosion. This "break-up" of rangeland is contributing to Montana's erosion problems and is damaging the rangeland resource.

The 1977 Montana Rangeland Resources Coordination Act objectives are to promote the coordination of activities intended to maintain and enhance the rangeland resources of Montana. The Montana Rangeland Resources Program of DNRC is carrying out these objectives and will continue to do so. To assist in maintaining range resources the 1979 Legislature provided $300,000 of Coal Severance Tax money through the Renewable Resource Development Program to implement a pilot Rangeland Improvement Loan Program (for 1981 figures see Sources and Status of Assistance and Funding Needs section). This program provides for interest free loans to make rangeland improvements that would otherwise not be made. Applications are made through local conservation districts and are based on long term conservation plans. As of January 1981, 22 loans have been made totaling $299,770.

Concerns

Clearly too much of Montana's rangeland is overused and in less than good condition. Increased applications of range improvement practices (managerial and structural) are needed. Also, rangeland "break-up" is damaging Montana's range resources and contributing to problems with soil erosion, water quality, and saline seep.

Objectives

A) To target areas for resource priorities the CDD will prioritize all counties in Montana on the basis of their potential for range improvement and will direct funds and manpower on this basis. See Part A, Objective 12 of the Work Plan.

Rationale: The potential for range improvement must be known in order to direct funds and manpower to those areas that have the greatest potential.

B) To provide incentives for improvement of rangeland resources $500,000 is needed each biennium to establish a 5-million-dollar revolving fund for interest free range loans. The CDD will seek continued financing for the Rangeland Improvement Loan Program. See Part A, Objective 13 of the Work Plan.

Rationale: Incentives for range improvement practices are needed.

C) To provide current information on rangeland conditions in Montana and to assess the rangeland goals set by the CDD in 1970 the CDD will update its plan for the Montana Rangeland Resources Program. See Part A, Objective 14 of the Work Plan.

Rationale: The Rangeland Resources Program is 5 years old and needs to be updated.

D) To prevent breakup of land unsuitable for cropping; the CD will attempt to find a CD interested in passing a model ordinance to stop this breakup of rangeland. See Part A, Objective 15 of the Work Plan.

Rationale: The problem of rangeland breakup and wind erosion in Montana has become severe enough to justify CDs' use of their land use regulation authorities.

E) To distribute range managment information to 1,000 additional range operators; the CDD will request that the Montana Cooperative Extension Service, the Montana Experiment Station, the SCS, and the Forestry Division of DNRC provide this information annually. See Part B, Objective 38 of the Work Plan.

Rationale: More range operators must be reached so range management information will be used to improve range conditions in Montana.

F) To prevent operators from drawing federal payments on classes of land unsuitable for cropping, the CDD will request USDA to make a policy change. These federal payments include Agricultural Conservation Program cost-sharing funds, federal crop disaster payments, and federal crop insurance. See Part B, Objective 39 of the Work Plan.

Rationale: Sometimes agricultural operators take advantage of programs for soil conservation on land that should never have been cropped. This objective is aimed at stopping breakup of rangeland.

LOSS OF PRIME AGRICULTURAL LAND

Situation

High on the list of problems plaguing Montana CDs is the loss of production acreage, particularly cropland; loss of rangeland and pastureland are also of concern. Loss of agricultural land, changes in land use, and development in rural areas are all part of the same problem, and all seem bound to continue. (See sections on Changes in Land Use and Rural Development).

The conversion of agricultural land to nonagricultural uses such as residential and commercial development results from several pressures; increased population, industrial expansion, demand for recreation areas, and land speculation are among them. In any case, the irrevocable conversion of agricultural land has reached proportions that concern all those interested in the future welfare of agriculture.

Although the term "prime land" is used to generally describe any good land, there are marked differences between certain types of land. Prime land is any land that has the best combination of physical and chemical characteristics for producing any crop that could be grown in the area, and that has the soil quality, growing season, and moisture supply needed to economically produce sustained high yields under acceptable farming practices.

Equally valuable are those unique farmlands with a special combination of soil, location, growing season, and moisture supply, able to sustain high quality yields of a particular crop. In Montana, the land around Flathead Lake, where cherry orchards make up the main use of farmland, is a good example of unique land.

A third type of agricultural land is that called "important." Land in this category is of statewide or local importance for production of crops and forage. It includes those lands that are nearly "prime" and that economically produce high yields of crops when treated and managed according to acceptable farming methods. Some produce as high a yield as prime farmland if conditions are favorable.

As mentioned in the section on Changes in Land Use, when farmers and ranchers must resort to marginal land for crops and pasture, costs of production go up. It takes more treatment to bring such land up to standards of production comparable to those of the three best types of land. Getting irrigation water to such land is often difficult and expensive. This type of land could be more profitably used for nonagricultural purposes.

Concerns

Loss of Montana's farm and range lands is a critical problem that must be slowed by proven methods of preserving agricultural land.

Objectives

A) To provide local level incentives to keep productive land in production. The CDD will assist CDs with the development of agricultural preservation programs. See Part A, Objective 7 in the Work Plan.

Rationale: The rate of farmland loss in some districts is so critical that the ability of farmers and ranchers to maintain their operations under pressure of increased costs is threatened. Programs and incentives to preserve agricultural land in these areas are needed.

RECREATION

Situation

Montana offers many forms of dispersed recreation, such as camping, fishing, photography, and nature study. The state park system is extensive, now numbering 300 recreation sites. Both public and private lands throughout Montana are important for recreation and the wildlife often associated with it. But projected upswings in population, complicated by increased demands on a shrinking land base, are expected to reduce the land available for recreation.

Design for Tomorrow (the executive summary of the Statewide Comprehensive Outdoor Recreation Plan, 1978) developed by the Montana Department of Fish, Wildlife, and Parks (DFWP) for future recreation management, is based on the premise that the state's population will exceed one million by 1995. The plan indicated that availability of recreational resources will be jeopardized by declining access to public and private lands and waters. Using hunting as an example, a trend documented by DFWP in 1973 and 1975 showed that landowners were increasingly reluctant to admit deer hunters to their land. Vandalism and damage to livestock were cited as principal reasons for this attitude. Although DFWP is working to improve relations between landowners and sportsmen, the problem is likely to remain. If population estimates are correct, the resident hunters alone could exceed current numbers of both resident and nonresident hunters. DFWP defines the resulting problem as "an increasing stress upon a decreasing resource base."

Part of the problem is an increase in conversions of land to such uses as energy development, urban expansion, rural subdivision, and agricultural use of marginal land. These in turn reduce recreational access, wildlife habitat, and water resources. Private enterprise could work with agencies to develop solutions to these problems, as well as work cooperatively with CDs to provide local recreation services.

Concerns

The CDD is concerned about these trends because such added pressures strain the capabilities of both rangeland and agricultural land. The primary problem that the conservation districts pointed out is related to recreation access for such kinds of recreation as hunting, fishing, floating, snowmobiling, and trail bicycling.

Objectives

A) To increase recreational access the CDD will conduct an education and information program on conservation easements and their benefits to landowners and the public. In turn supervisors will be able to encourage landowners in their district to obtain a conservation easement. See Part A, Objective 16 of the Work Plan.

Rationale: Many district supervisors have misconceptions of conservation easements; if they

were educated on the benefits of easements they could be instrumental in clearing up misconceptions other landowners may have.

B) To provide recreational access the CDD will encourage the Department of Fish, Wildlife, and Parks (DFWP), USDA Forest Service, and the Bureau of Land Managment to enter into cooperative agreements with landowners in exchange for their services according to the terms of the agreement. See Part B, Objective 40 of the Work Plan.

Rationale: Public access to recreation sites is needed and these agreements will give incentives to landowners to provide access sites.

C) To promote greater involvement of private recreation enterprises in DFWP's statewide comprehensive outdoor recreation planning the CDD, with the cooperation and assistance of SCS and the Montana Association of Conservation Districts, will provide DFWP with information on outdoor recreation activities offered by private enterprise. See Part B, Objective 41 of the Work Plan.

Rationale: Outdoor recreation is a land and water use, and inasmuch as conservation districts serve private enterprise in soil and water conservation, this will be an attempt at coordinating recreation activity use.

WATER QUALITY

Situation

Under the Federal Water Pollution Control Act Amendments of 1972, PL92-500, Section 208, Montana's governor designated the Montana Department of Health and Environmental Sciences, Water Quality Bureau, as the responsible water quality planning agency for the state. As a result, the Water Quality Bureau's Statewide Water Quality Management Plan has been adopted by the State of Montana. CDs have agreed with the Department of Health and Environmental Sciences to be the local management agencies for water quality improvement programs. The CDs have also adopted water quality management plans for their districts.

Although intensive management in the recent past has nearly alleviated point source pollution there are still some localized point source water quality problems in the state. Cities and towns cause most of this remaining point source pollution, but the state's programs for wastewater discharge permits and construction grants should virtually eliminate any remaining problems.

The most significant water quality problems originate from nonpoint sources such as irrigation dewatering and return flows, saline seep, and sediment from agriculture, urban and stormwater runoff, logging, and mining (DHES 1979) (note: these sources are not listed in order of their severity).

The extent of Montana's water quality problems has been documented by the Conservation Districts in An Agricultural Non-Point Source Pollution Management Plan for the Statewide Water Quality Management Plan. This report covers all of Montana except for the 13 counties in 208 Areawide Planning Organizations (DHES 1979).

Irrigation can severely reduce stream flows, as it has in tributaries to the Beaverhead, Bitterroot, West Gallatin, Big Hole, Jefferson, and other rivers. The CD inventory identified 873 miles of streams with severe annual irrigation dewatering. Excessive water withdrawals cause a reduction in fisheries potential due to loss of aquatic habitat, elevated temperatures, depressed dissolved oxygen levels, increased dissolved substances, algae blooms, and salinity increases. Drinking water, water sports, irrigation, and industrial uses are impaired by such decreases in water quality. In addition irrigation return flows bring added problems. Each new acre of irrigated land can contribute as much as ½ to 2 tons of salt to streams each year. Salinity has already reached high levels on the Musselshell, Teton, Lower Yellowstone, Milk, and other river basin drainages (DHES 1979). Saline seep affects both surface and underground water; however, the extent of damage to water quality is not fully documented because no detailed saline seep records have been kept (see Saline Seep section). Excessive sediment is still the most common water quality problem in Montana (DHES 1979). (see Soil Erosion section)

Natural geological processes release sediment, but human activities hasten its production and magnify its effects. The CD inventory indicated that 3,700,000 acres of dry cropland, 4,900,000 acres of rangeland and pasture, and 144,000 acres of irrigated cropland are being eroded by wind and water because of poor grazing or tillage practices. Furthermore, the inventory identified 1,108 miles of streambank that are being eroded. Urban stormwater runoff and construction activities discharge nutrients, minerals, heavy metals, oil and grease, and sediment to surface waters. Logging and its accompanying activities

have caused substantial water quality degradation. In addition, 133 polluting mine operations have been identified. The inventory points out that 50 percent or more of these sediment problems could have been avoided if proper conservation practices had been used (DHES 1979).

A profile of one stream identified by a conservation district as a water quality problem is Prickly Pear Creek in Lewis and Clark and Jefferson Valley CDs (Lewis and Clark CD 1979, Jefferson Valley CD 1980). Briefly, the problems identified on the Prickly Pear are due to hard rock mining in the upper tributaries which has discharged heavy metals into the creek. Placer mining along the mainstem above East Helena has altered the channel and caused sedimentation; also highway and railroad construction has resulted in numerous channel changes. Some major industries are affecting the water quality of the creek. Water withdrawal for irrigation below East Helena has frequently dried up the stream. Sand and gravel operations, suburban growth, agricultural practices, and other activities have damaged the riparian zone below East Helena. The cities of Helena and East Helena both discharge partially-treated sewage to the stream. The Prickly Pear has been found by the Water Quality Bureau to be one of the poorest quality streams in southwestern Montana (DHES 1980).

Lewis and Clark and Jefferson Valley conservation districts are (through their water quality management programs) jointly working on a project with water quality agencies and interest groups to clean up the Prickly Pear.

Concerns

Montana's major water quality problems originate from nonpoint sources. The most serious of these problems result from irrigation dewatering and return flows, saline seeps, sediment carrying chemical and biological pollutants from agricultural activities, urban and storm runoff, logging, and mining. The conservation districts have identified their most severe water quality problems in their water quality management plans. If these problems are to be solved on the local level, the conservation districts will need the active support of water quality agencies and the state legislature.

Objectives

A) To improve water quality the CDD will accept 6 CD water quality management proposals to be funded for preparing feasibility studies, funding proposals, and other project planning activities. The CDD will work with the Department of Health and Environmental Sciences (DHES) to carry out this objective. See Part A, Objective 17 of the Work Plan.

Rationale: The CDs have identified water quality problems in their water quality management plans. Several of these problems are severe enough to warrant special attention. Project proposals will allow the CDs to obtain funding assistance.

B) To improve water quality the CDD will assist CDs to secure funding for water quality projects. See Part A, Objective 18 of the Work Plan.

Rationale: CDs will need funding assistance to solve their water quality problems.

C) To identify water quality problems on streams that require inventories according to CDs water quality management plans. The CDD will request the SCS, DHES, and the Department of Fish, Wildlife, and Parks to give accelerated assistance to these stream inventories. See Part B, Objective 42 of the Work Plan.

Rationale: These CDs have not been able to identify problems on a site-specific basis in their districts because the problems are too complex. A stream inventory is needed to pinpoint these diverse problems and provide data for requests of funding from public assistance programs.

Situation

Saline seeps are salty areas that have developed within the last 40 years on nonirrigated cropland. The soil is wet some or all of the time, and salt crusts may result; the salinity can reduce or eliminate crop or grass growth. Saline seeps result from a combination of geological and soil conditions, cropping practices, and to some extent, higher than average annual precipitation.

Summer fallowing accelerates the rate of saline seep development. It allows the soil to store more water than can be used by the crop in one growing season. This unused water moves down through the soil and permeable subsoils, dissolving the naturally occurring salts enroute. When the salts and water reach an impermeable layer, they move horizontally, and most eventually reach the surface. As the water evaporates, salt deposits are left behind, forming a saline seep.

The 1978 estimate of Montana drylands affected by saline seep was 200,000 acres and growing at a rate of 10 percent a year (SCS 1979). However, careful evaluation of the saline seep mapping project by the Montana Bureau of Mines and Geology and reports by the Triangle Conservation District Saline Seep Team suggests that the 200,000 acre figure may be too low.

> Seep-affected areas in northern and central Montana appear to be considerably greater than previously estimated; conversely, in southern and eastern Montana the seep areas appeared to be less than previous estimates. On a region wide basis, the acreage of saline seep appears to be expanding at a rate exceeding 10 percent per year...Expansion of seep areas by 20 to 200 percent in wet years is not uncommon, whereas expansion of only a few percent may occur in dry years (Montana Bureau of Mines and Geology 1979).

No current statewide acreage estimate of saline seep-affected area in Montana is available. However, the National Resource Inventory being carried out by the SCS does include an inventory of saline seep acreages for Montana. This information will be available in 1983. Also, several conservation districts have identified saline seep problems in their long-range plans. Teton CD reported 10,000 acres are being affected by saline seep, and Stillwater CD reported from 15,000 to 20,000 acres are being affected by saline seeps (Teton CD 1980, Stillwater CD 1980).

Analyses have been made of water collected by the Montana Bureau of Mines and Geology near Fort Benton and Sidney, Montana; Mott, North Dakota; and Lethbridge, Alberta. The resulting data strongly suggested that in addition to the loss of thousands of acres of valuable farmland to saline seeps, mineralized water was rapidly contaminating nearby reservoirs, streams, and shallow aquifers. In some cases, the water was more saline than sea water (water tested was approximately 35,000 parts per million total dissolved solids) and was unfit for domestic, livestock, and irrigation use. Reported livestock and wildlife kills in certain areas may be related to salinity problems (Montana Bureau of Mines and Geology 1979).

Solving saline seep problems can become a complicated landownership problem, which occurs when the area that is the source of excess moisture is under different ownership than the area where the seep surfaces. Cooperation between landowners is often necessary when trying to solve saline seep problems.

Concerns

Saline seeps affect Montana's water quality, wildlife resources, soil resources, and rangeland, severely curtailing the yield of crops or taking cropland and rangeland entirely out of production.

Objectives

A) To demonstrate the effectiveness of flexible cropping in controlling saline seep and soil erosion, and in achieving water quality improvement. The CD will assist interested CDs to set up four demonstration plots in Montana. See Part A, Objective 19 of the Work Plan.

Rationale: Farmers have been reluctant to use a flexible cropping system to control saline seep. Demonstration plots will help educate agriculturalists on the use of flexible cropping systems.

B) To make more assistance available in saline seep prevention and control. The CDD will request the SCS to provide more trained technical

assistance for control and prevention of saline seep. See Part B, Objective 43 of the Work Plan.

Rationale: Often it is difficult for a farmer, untrained in saline seep problems, to identify recharge areas, and to prescribe prevention and control methods for saline seep.

C) To cost-share saline seep control practices, the CDD will work with Agricultural Stabilization and Conservation Service on the National Farm Program to allow implementation of flexible-cropping systems without penalty to the farmer. A cost-share program for well drilling and other field work necessary to develop a reclamation plan for individual farmers will be considered. See Part B, Objective 44 of the Work Plan.

Rationale: Incentives are needed to encourage agricultural producers to control saline seep.

D) To support locally operated saline seep control programs such as the Triangle Saline Seep Program. See Part B, Objective 45 of the Work Plan.

Rationale: The Triangle program has been very successful in identifying and controlling seeps in the 9-county Triangle area.

FLOODING

Situation

Flood damage presents serious health, environmental, economic, and safety problems. The Upper Missouri River Basin Level B Study estimated flood damage in the Montana portion of the basin for 1975, a flood year, at a cost of over $7.5 million, affecting over 1 million acres of land. Flood damages projected for 1990 and 2000 are estimated to be $8.5 and $8.9 million, respectively. But the Upper Missouri study estimated that, if accelerated enforcement of flood-plain regulations is implemented, flood damages are expected to be reduced by about 11 percent (from $8.5 million) in 1990 and 16 percent (from $8.9 million) in 2000.

Only one county in Montana has developed a contingency plan for evacuation in the event of a flood; that plan was prepared by the Carbon County Conservation District.

Several measures providing varying degrees of flood control have been instituted throughout the state. Some flood control protection is provided by several large-scale projects built by the U.S. Army Corps of Engineers and Bureau of Reclamation (Hungry Horse, Canyon Ferry, Yellowtail), and by small watershed projects constructed by the SCS under PL566. Montana owns 25 dams, as well; most have agricultural water storage rather than flood control as their chief function. Nonstructural approaches to flood control, such as flood-plain regulation, limit the types of developments on the flood plain or require flood proofing of structures already in the flood plain. Federal flood insurance has helped to reduce monetary damages suffered by flood-plain residents but cannot reduce actual damage. Under state law, flood-plain regulation provides for local administration of standards. Local governments need to take the responsibility for regulating their flood plains.

Concerns

The major concerns pointed out by the districts for flooding are the negative environmental and economic impacts caused by flooding, and the need to lessen these impacts.

Objectives

A) To increase watershed protection and flood prevention by increasing funding for PL566 projects. The CDD will support efforts of Congress and the Montana legislature to increase funding for the PL566 program. See Part B, Objective 46 of the Work Plan.

Rationale: Incentives are needed to encourage the construction of small flood prevention projects.

B) To reduce damages caused by flooding, the CDD will encourage CDs to work with their local planning boards to enforce local floodplain regulations. See Part B, Objective 47 of the Work Plan.

Rationale: Floodplain regulations are necessary to reduce flood damages; CDs could be instrumental in enforcing these laws.

Situation

The greatest problem facing wildlife today in Montana is loss of habitat. Human encroachment has accelerated in recent years as land uses change rapidly. Habitat is being destroyed or severely altered by energy development, urban expansion, rural subdivision, highway easements, and conversion of marginal land to agricultural use. Farm and forestry cultural practices disturb or destroy habitat, and overgrazing can reduce the food available to wildlife of many species.

As wildlife habitat decreases or loses its ability to support certain birds and animals, those populations decline. Wildlife under stress do not reproduce at a normal rate; young often fail to survive, due to inadequate food and insufficient range. Montana's big game populations are hard hit as development encroaches on their natural habitat, and changes their migration patterns. Nongame species, too, are forced to areas that are inadequate or incompatible to their needs. Many are unable to adapt to changes in their environments.

Private rangelands are vital to Montana's wildlife; they provide two-thirds of the food needed by our wildlife; private forestlands offer habitat (DNRC 1977). Some of the private land affords ponds, sloughs, and waterways for waterfowl, as well.

Concerns

As the human population increases, its demands for food, land, and water grow. This added pressure strains the capabilities of the land that remains. Managers of wildlife have an obligation to provide areas for its preservation.

Objectives

A) To increase good riparian management the CDD will educate CDs on the importance of riparian habitat management. The district supervisors will then be able to encourage landowners in their district to employ good riparian management practices. See Part A, Objective 20 of the Work Plan.

Rationale: Many supervisors are not aware of the importance of the riparian habitat in providing fish and wildlife habitat, maintaining water quality, and preserving streambanks.

B) To improve or protect wildlife and fish habitat the CDD will, with the Department of Fish, Wildlife, and Parks (DFWP), set up a joint CDD and DFWP committee. This committee will investigate and recommend methods for providing incentives to landowners for habitat improvements or protection. Based on committee recommendations pilot programs will be established,and these programs will be supervised by the committee. See Part B, Objective 48 of the Work Plan.

Rationale: Pilot programs are needed to demonstrate the effectiveness of incentives in improving and protecting habitat, and the benefits of these incentives to landowners.

C) To develop fish and wildlife habitat plans in conjunction with farm conservation plans, the CDD will request the SCS and CDs to ask all landowners to consider developing habitat plans in conjunction with their conservation plans. See Part B, Objective 49 of the Work Plan. On rangeland, emphasis should be given to rest-rotation systems.

Rationale: Many landowners need incentives to develop wildlife and fish habitat on their land to replace habitat lost because of land use changes.

D) To develop fish and wildlife improvement projects and educational programs, the CDD will request the CDs to give fish and wildlife improvement projects high priority in their planning activities. See Part B, Objective 50 of the Work Plan.

Rationale: Some agriculturalists and other land users may not recognize the importance of providing habitat for Montana's fish and wildlife. As local level influencing agencies CDs need to educate these people as well as give concrete support by initiating habitat improvement projects.

FORESTRY

Situation

Montana's land area totals approximately 93.1 million acres, of which approximately 23 million acres are forested; of this, about 62 percent (14.4 million acres) is classified as commercial forest land. A third of Montana's commercial forest land is under small private and large industrial ownership. Sixty-seven percent of Montana's commercial forest land is under state, U.S. Forest Service, and other public management (DNRC 1980).

Loss of commercial forest land is discussed in the sections on Food and Fiber Production, Changes in Land Use, and Rural Development, but it is primarily addressed in this section. In the small private sector, subdivisions have depleted the commercial forest land base. For example, the number of forest landowners in Montana has increased from about 9,500 in 1969 to over 25,000 in 1979, an increase of over 163 percent. As the larger ownerships are divided into smaller ones (often as small as 3 to 5 acres), the land is essentially lost as a source of commercial timber (DNRC 1980).

In 1978 projections indicated that the demand for timber is expected to remain at current levels in the 1990's with a gradual increase of approximately 30 percent occurring by 2030. An increased share of the forest production is expected to come from small forestland (both privately- and state-managed), with much more assistance needed by individual landowners (DNRC 1980).

Concerns

Improper timber harvest and related forestry activities can result in serious environmental damage. Sometimes roads are poorly built, plant communities are disrupted, wildlife habitat is affected, vistas are altered, watersheds are damaged, and man becomes a more frequent visitor. The districts are particularly concerned over land use conversions affecting forest and related resources, sedimentation problems caused by improper forestry activities, erosion, and a need for increased reforestation activities.

Objectives

A) To make contact with the small forest landowner through additional state foresters working on the Forestry Assistance Programs of the DNRC Division of Forestry. The CDD will support efforts to obtain these additional state foresters. See Part B, Objective 51 of the Work Plan.

Rationale: Since the number of forest landowners is expected to increase, foresters are needed to make these forest landowners aware of the management programs available to them.

B) To adopt forestry practices for the CDs' water quality management plans; the CDD will assist CDs to use the practices outlined by the Department of Health and Environmental Sciences. The CDD will obtain the DNRC Forestry Division's approval of the forestry practices prior to recommending them to the CDs. See Part B, Objective 52 of the Work Plan.

Rationale: The CDs need to make forestry product producers aware of water quality maintenance practices.

Situation

The Statewide Water Quality Management Plan has identified 133 polluting mining operations (DHES 1979). The most serious problems are created by hard rock mines which cause acid mine drainage and sediment. The 1971 Metal Mine Reclamation Act requires that these mines be reclaimed. However, the Small Miner Exclusion Statement in the act exempts from reclamation mines moving less than 36,500 tons of overburden and ore, or disturbing less than 5 acres of land. Also, mines abandoned before 1971 are not covered by this law. Therefore, small hard rock mining operations, more numerous and less carefully scrutinized than larger, less remote mines, are and will continue to be major local sources of water pollution (DHES 1979).

Several CDs have identified a concern over coal strip mining in their long-range plans. These districts, Powder River, Treasure County, and Rosebud County, are mainly concerned over the temporary loss of productive agricultural land to strip mining and the disruption of aquifers.

Since the passage of the 1973 Montana Strip and Underground Mine Reclamation Act, the Montana Department of State Lands has been issuing permits for coal strip mining. As of February 1981, 22,818 acres have been permitted under the Strip-mining Act. Of these 22,818 acres, 10,793 are permitted for mining level disturbances (actual area of extraction); 3,184 acres are permitted for mining facilities (coal crushers, haul roads, sediment ponds, diversion ditches, storage, offices, etc.); 8,842 acres are permitted for associated disturbances (power lines, light roads, etc.) (Montana Department of State Lands 1981). Most of the strippable coal in Montana is overlain by rangeland. Few of the strip mine leaseholds have significant amounts of small grain and hayland on a site by site basis. However, mining may occur on alluvial soils which are often valuable agricultural lands.

According to the Montana Bureau of Mines and Geology:

> *"...water levels or hydrostatic pressures in aquifers penetrated by mining will decline because of increased, reversed, or interrupted hydraulic gradients. Such observations cause no astonishment; the principles of hydrology demand that they occur. It has also been shown without surprise that under certain vertical-flow conditions, hydrostatic pressures in aquifers below an active mine can decline because of reduced pressures in above lying disturbed aquifers (Montana Bureau of Mines and Geology 1977)."*

For example, the proposed expanded mining operations near Colstrip in southeastern Montana, depending on the size of actual mine areas, may physically destroy 5 perennial reservoirs, 4 springs, and 26 water wells. In addition, storage yields from 3 springs and 9 wells and storage in 4 other reservoirs may be diminished (Montana Bureau of Mines and Geology 1977).

Concerns

Acid mine drainage from hard rock mines is causing serious water quality problems in the state. Strip mining in eastern Montana will cause a disruption in local aquifers and undoubtedly affect other water users. Also there is concern over loss of productive agricultural land to strip mining. Careful attention must be given to preserve these areas.

Objectives

A) To carry out a stream reclamation project on the Prickly Pear drainage for abatement of acid mine drainage problems, the CDD will support efforts of the Montana Department of State Lands to use Abandoned Mine Land Program money for the Prickly Pear project. Also the CDD will request that the CDs support this project and recommend use of these funds on other mine drainage projects identified in some of the CDs' water quality management plans. See part B, Objective 53 of the Work Plan.

Rationale: Solving the problems of acid mine drainage problems from hard rock mining is very costly. Financial assistance is needed.

B) To assist CDs with land use conversion and aquifer disruption problems with coal strip mining. Emphasis will be placed on preserving prime, unique, and statewide important farmland (see Changes in Land Use section), and determining effects of proposed coal strip mining on aquifers. See Part B, Objective 54 of the Work Plan.

Rationale: The CDD can help CDs coordinate activities involving coal strip mining, on the state level, with other agencies.

Situation

Montana's streams and rivers provide some of the finest fish habitat in the nation. The western two-thirds of Montana has 12,050 miles of trout streams. About 70 percent of the state's trout fishery is bordered by private land (DFG 1978). This habitat can only be protected by expensive land acquisition, or by in-stream reservations; its future condition depends on its preservation. The unique paddlefish inhabits the larger rivers in eastern Montana where fishing access is generally not a problem. The whitefish, kokanee, and grayling, however, live in streams that are bordered by private land to a large extent. Increased recreation use and changes in land ownership or use may affect this fishery.

Where agricultural and other uses co-exist with fish habitat, its preservation can be achieved if those responsible protect stream banks and avoid channelization. The areas along streams are often the most vulnerable to erosion, breakdown, and the sedimentation that follows. Stream banks can be protected by maintaining vegetation that resists erosion, fencing livestock, establishing riprap that can be bermed and planted, and tilling away from stream banks. Landowners should avoid clearing vegetation from stream banks since overhangs of trees and shrubs afford needed cover in pools that fish like to frequent (DFWP 1981). Other problems, like dewatering, are discussed in the Water Quality section.

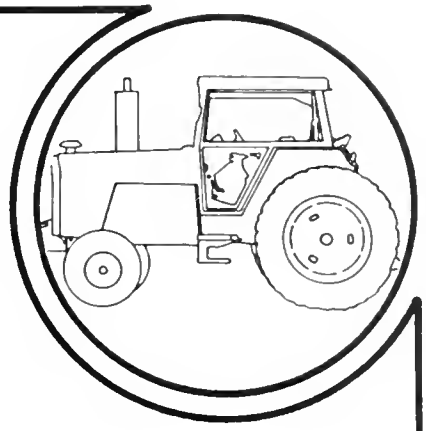
Concerns

Because so much of Montana's fish habitat borders private land, the cooperation of landowners is essential for its preservation.

Objectives

A) To provide adequate in-stream flows for fish habitat, the CDD will encourage fish and wildlife management agencies to work with CDs and irrigators to research the feasibility of constructing off-stream storage sites for joint irrigation and in-stream flow needs. See Part B, Objective 55 of the Work Plan.

Rationale: The possibility of off-stream storage for fish habitat preservation should be researched in coordination with irrigators.



III. WORK PLAN

The Conservation Districts Division has developed a plan of work for carrying out this resource conservation plan. The work plan contains two parts; the first part contains the objectives within CDD control, and the second part contains the objectives influenced by the CDD.

PART A: OBJECTIVES WITHIN CDD CONTROL

Objectives 1-20 are to be completed in their entirety by the Conservation Districts Division of DNRC. The objectives are grouped under the concern they are intended to address; each objective is followed by a list of tasks which are units of work necessary to complete the objective. To the side of each task is a column showing the hours required to complete each task. The second column shows the cost of completing the task in CD salaries, benefits, and travel (where significant); please note that rents, telephone, utilities, and administrative costs are not included. The third column records "pass-through monies," which includes loan and grant money for projects in the objective. The fourth column shows total costs, and tallies the second and third columns. Costs are based on 1980 dollars. Following the objectives in Part A is a time schedule showing the periods when objectives 1-20 will be carried out during Fiscal Years 1982-1985.

CONCERN: SOIL EROSION

Objective and Tasks	Hours	Cost ($)	Pass Thru ($)	Total Cost ($)
1. To continue soil surveys for Montana the CDD will assist CDs to secure funds for work on their county soil surveys.				
01. Contact 30 CDs	16	144.00		144.00
02. Secure 15 interested CDs	60	576.00		576.00
03. Assist CDs to develop funding proposals	180	1,728.00		1,728.00
04. Examine possible funding sources with CDs	120	1,152.00		1,152.00
05. Assist CDs to select funding source	120	1,152.00		1,152.00
06. Support funding request	60	576.00		576.00
Subtotal	556	$5,328.00		$5,328.00
2. To complete soil surveys in Montana the CDD will seek funds to implement the **Montana Soil Survey Plan**. The plan will take 18 years to complete, at a cost of $525,000 annually beginning in Fiscal Year 1984.				
01. Examine possible funding sources	20	283.20		283.20
02. Select desired source	06	84.96		84.96
03. Develop funding request	12	169.92		169.92
04. Support funding request	32	453.12		453.12
05. Secure funding	08	113.28	1,050,000.00	1,050,113.28
Subtotal	78	$1,104.48	$1,050,000.00	$1,051,104.48

3.	To help begin 2 soil erosion control projects. Projects will be considered in the Bitterroot, Beartooth, or Headwaters Resource Conservation and Development (RC&D) areas and in conservation districts.				
01.	Contact RC&Ds and CDs	08	113.28		113.28
02.	Identify interested RC&Ds or CDs	20	283.20		283.20
03.	Review RC&D and CD plans to evaluate potential projects	30	424.80		424.80
04.	Meet with RC&Ds or CDs	32	453.12		453.12
05.	Inspect project sites	16	226.56		226.56
06.	Assist to develop project proposals	80	1,132.80		1,132.80
07.	Examine possible funding sources with CDs and RC&Ds	20	283.20		283.20
08.	Assist CDs or RC&Ds to select desired funding source	06	84.96		84.96
09.	Support funding request	32	453.12		453.12
	Subtotal	244	$3,455.04		$3,455.04
	Total for Soil Erosion	878	$9,887.52	$1,050,000.00	$1,059,887.52

CONCERN: WATER SUPPLY

4. To provide incentives for water supply improvement projects the CDD will continue its attempts to secure $112,000 biannually as a state match for PL566 Watershed Project Planning. The PL566 program involves construction of multiple-use water projects.

01.	Examine possible funding sources	20	283.20		283.20
02.	Select desired funding source	06	84.96		84.96
03.	Develop funding request	12	169.92		169.92
04.	Support funding request	32	453.12		453.12
05.	Secure funding	08	113.28	224,000.00	224,113.28
	Subtotal	78	$1,104.48	$224,000.00	$225,104.48
	Total for Water Supply	78	$1,104.48	$224,000,00	$225,104.48

5. To provide loans for weed control the CDD will include weed control loans in Rangeland Improvement Loan Program packages (see the Rangeland Improvement section).				
01. Meet with the Rangeland Executive Committee to set up addition of weed control loans to a rangeland loan package	16	432.08		432.08
02. Finalize loan package	24	230.40		230.40
03. Develop criteria for loan acceptance	40	384.00		384.00
04. Develop guidelines for loan applications	40	384.00		384.00
05. Inform CDs and general public of addition of noxious weed controls to range loan program through CD workshops and news articles	80	768.00		768.00
Subtotal	200	$2,198.48		$2,198.48
6. To control noxious weeds the CDD will provide funds for demonstrating the effectiveness of TORDON in controlling leafy spurge. Thirty demonstration plots will be set up throughout Montana; $1,000 is available from the Renewable Resource Development Funds for each plot; projects will run for 5 to 10 years.				
01. Set up demonstration plot plan (to include plan for final evaluation of the project)	40	566.40		566.40
02. Inform CDs of program and ask for their sponsorship	08	113.28		113.28
03. Obtain demonstration plots	60	849.60		849.60
04. Fund plots	60	543.60	30,000.00	543.60
05. Set up public information program	08	113.28		113.28
Subtotal	176	$2,186.16	$30,000.00	$32,186.16
Total for Noxious Weeds	376	$4,384.64	$30,000.00	$34,384.64

CONCERN: CHANGES IN LAND USE

7.	To provide local level incentives to keep productive land in production. The CDD will assist interested CDs with the development of agricultural preservation programs.			
01.	Research CDs legal authority for using present methods of agricultural land preservation	60	950.40	950.40
02.	Research present methods used by other states for preservation of agricultural land	160	1,324.80	1,324.80
03.	Recommend best methods for use by Montana's CDs	48	397.44	397.44
04.	Develop information packet for CDs	120	993.36	993.36
05.	Hold seminars on agricultural land preservation in conjunction with the Montana Association of Conservation Districts area meetings to gain the CDs support in preserving prime agricultural land	100	1,092.40	1,092.40
06.	Assist interested CD with setting up an agricultural land preservation program; this will be considered a pilot program	165	1,374.48	1,374.48
	Subtotal	653	$6,132.88	$6,132.88
	Total for Changes in Land Use	653	$6,132.88	$6,132.88

8.	To train supervisors and CD employees for their responsibilities, the CDD will hold annual training workshops for CD supervisors and CD employees.			
	01. Select workshop material	160	662.40	662.40
	02. Plan agenda	24	198.72	198.72
	03. Notify supervisors and CD employees	24	198.72	198.72
	04. Hold workshops; 3 workshops in each of the 6 SCS work unit boundaries	1,152	11,056.88	11,056.88
	Subtotal	1,360	$12,116.72	$12,116.72
9.	To make the public, resource agencies, and legislators aware of CD projects and functions, the CDD will hold a conservation education tour of CD projects.			
	01. Select tour site	48	679.68	679.68
	02. Organize tour (plan agenda)	48	679.68	679.68
	03. Inform the public and natural resource agencies and legislators	120	950.40	950.40
	04. Hold tour	24	339.84	339.84
	Subtotal	240	$2,649.60	$2,649.60
10.	To educate supervisors on operations of a district the CDD will develop a procedure manual for CD supervisors and CD employees.			
	01. Develop a questionnaire for CD supervisors and district employees to obtain information they need in a procedure manual	30	248.40	248.40
	02. Send questionnaires	06	45.36	45.36
	03. Tally and analyze questionnaires	24	198.72	198.72
	04. Prepare outline for procedure manual	20	165.60	165.60
	05. Prepare text of procedure manual	96	794.88	794.88
	06. Edit and review	40	324.00	324.00
	07. Complete graphics	24	187.20	187.20
	08. Complete printing (not DNRC time)	00	1,000.00	1,000.00
	09. Distribute copies	08	260.00	260.00
	Subtotal	248	$3,224.16	$3,224.16

11.	To plan for resource conservation on the local level, the CDD will assist CDs with their long-range (five-year) plans by developing updated guidelines for planning activities.			
01.	Revise data in 1974 guidelines	48	397.44	397.44
02.	Develop new outline	40	331.20	331.20
03.	Write text of guidelines	160	1,324.80	1,324.80
04.	Review and edit	60	496.80	496.80
05.	Complete graphics	24	198.72	198.72
06.	Complete printing (not DNRC time)	00	1,000.00	1,000.00
07.	Distribute	08	66.24	66.24
	Subtotal	340	$3,815.20	$3,815.20
	Total for Socio-Political	2,188	$21,805.68	$21,805.68

CONCERN: RANGELAND IMPROVEMENT

12.	To target areas for resource priorities the CDD will prioritize all counties in Montana on the basis of their potential for range improvement and will direct funds and manpower on this basis.				
	01. Select rating group	08	76.80		76.80
	02. Determine rating group	18	172.80		172.80
	03. Design rating form	18	172.80		172.80
	04. Hold rating session	20	192.00		192.00
	05. Research/revise	08	76.80		76.80
	06. Issue final list and completed rating matrix	22	211.20		211.20
	Subtotal	94	$902.40		$902.40
13.	To provide incentives for improvement of rangeland resources $500,000 is needed each biennium to establish a 5-million-dollar revolving fund for interest-free range loans. The CDD will seek continued financing for the Rangeland Improvement Loan Program.				
	01. Study available funding sources	32	307.20		307.20
	02. Choose a source	12	115.20		115.20
	03. Prepare budget and request	40	384.00		384.00
	04. Submit request	04	30.24		30.24
	05. Support funding request	60	576.00		576.00
	06. Secure funds	08	76.80	500,000.00	76.80
	Subtotal	156	$1,489.44	$500,000.00	$501,489.44
14.	To provide current information on rangeland conditions in Montana and to assess the rangeland goals set by the CDD in 1970; the CDD will update its plan for the Montana Rangeland Resource Program.				
	01. Obtain updated statistics	105	1,008.00		1,008.00
	02. Compare condition to 1980 goals	08	76.00		76.00
	03. Develop new goals	08	76.00		76.00
	04. Revise remainder of text	80	768.00		768.00
	05. Edit and review	80	700.80		700.80
	06. Complete graphics	24	187.20		187.20
	07. Complete printing (not DNRC time)	00	1,500.00		1,500.00
	08. Distribute copies	08	76.00		76.00
	Subtotal	313	$4,392.00		$4,392.00

15.	To prevent breakup of land unsuitable for cropping; the CDD will attempt to find a CD interested in passing a model ordinance to stop this breakup of rangeland.				
01.	Research legality of ordinance	24	380.16		380.16
02.	Develop a draft ordinance	80	662.40		662.40
03.	Develop informational program on the ordinance	80	662.40		662.40
04.	Gain CDs support (presentation at MACD area meetings)	100	1,092.40		1,092.40
05.	Find CD interested in passing model ordinance	40	331.20		331.20
06.	Assist CD with gathering baseline data	80	768.00		768.00
07.	Assist CD with final language of ordinance	24	380.16		380.16
	Subtotal	428	$4,276.72		$4,276.72
	Total for Rangeland Improvement	991	$11,060.56	$500,000.00	$511,060.56

CONCERN: RECREATION

16. To increase recreational access the CDD will conduct an education and information program on conservation easements and their benefits to landowners and the public. In turn supervisors will be able to encourage landowners in their district to obtain a conservation easement.			
01. Meet with DFWP to compile a presentation on conservation easements	12	99.36	99.36
02. Prepare an easement information packet for supervisors	120	993.60	993.60
03. Hold programs at MACD area meetings	100	1,092.40	1,092.40
04. Send additional information to follow up with CDs on easements	32	264.96	264.96
05. Refer interested agriculturalists to DFWP	12	99.36	99.36
Subtotal	276	$2,549.68	$2,549.68
Total for Recreation	276	$2,549.68	$2,549.68

CONCERN: WATER QUALITY

17.	To improve water quality the CDD will accept 6 CD water quality management proposals to be funded for preparing feasibility studies, funding proposals, and other project planning activities. The CDD will work with DHES to carry out this objective.			
01.	Assist with writing of proposals	144	1,382.40	1,382.40
02.	Review applications	96	921.60	921.60
03.	Inspect project sites	144	2,102.40	2,102.40
04.	Choose applications	72	691.20	691.20
	Subtotal	456	$5,097.60	$5,097.60
18.	To improve water quality the CDD will assit CDs to secure funding for water quality projects.			
01.	Contact CDs	16	144.00	144.00
02.	Secure interested CDs	60	576.00	576.00
03.	Assist CDs to develop funding proposals	180	1,728.00	1,728.00
04.	Examine possible funding sources with CDs	120	1,152.00	1,152.00
05.	Assist CDs to select funding source	120	1,152.00	1,152.00
06.	Support funding request	60	576.00	576.00
	Subtotal	556	$5,328.00	$5,328.00
	Total for Water Quality	1,012	$10,425.60	$10,425.60

CONCERN: SALINE SEEP

19.	To demonstrate the effectiveness of flexible cropping in controlling saline seep and soil erosion, and in achieving water quality improvement. The CDD will assist interested CDs to set up 4 demonstration plots in Montana.			
01.	Draw up program plan (revise Old West Proposal)	120	1,699.20	1,699.20
02.	Present plan at MACD area meetings	100	1,092.40	1,092.40
03.	Follow up with meetings with interested districts	64	529.92	529.92
04.	Secure CDs sponsorship	32	453.12	453.12
05.	Assist CDs to find farmer to sponsor demonstration plot	64	529.92	529.92
06.	Assist CDs to seek funding	80	1,132.80	1,132.80
07.	Assist CDs to set up contracts with farmer	40	566.40	566.40
08.	Assist CDs to obtain an agronomist	32	453.12	453.12
09.	Assist CDs with educational tours of the projects	64	529.92	529.92
10.	Assist CDs to set up evaluation of projects	80	1,132.80	1,132.80
	Subtotal	676	$8,119.60	$8,119.60
	Total for Saline Seep	676	$8,119.60	$8,119.60

CONCERN: WILDLIFE HABITAT

20. To increase good riparian management the CDD will educate CDs on the importance of riparian habitat management. The district supervisors will then be able to encourage landowners in their district to employ good riparian management practices.			
01. Meet with DFWP and DHES to make up a presentation on riparian management	12	99.36	99.36
02. Hold programs at MACD area meetings	100	1,092.40	1,092.40
03. Send additional information to CDs on riparian management	32	264.96	264.96
Subtotal	144	$1,456.72	$1,456.72
Total for Wildlife Habitat	144	$1,456.72	$1,456.72

TOTAL COSTS OF OBJECTIVES 1-20 (IN 1980 DOLLARS)

Soil Erosion	878	9,887.52	1,050,000.00	1,059,887.52
Water Supply	78	1,104.48	224,000.00	225,104.48
Noxious Weeds	376	4,384.64	30,000.00	34,384.64
Changes in Land Use	653	6,132.88		6,132.88
Socio-Political	2,188	21,805.68		21,805.68
Rangeland Improvement	991	11,060.56	500,000.00	511,060.56
Recreation	276	2,549.68		2,549.68
Water Quality	1,012	10,425.60		10,425.60
Saline Seep	676	8,119.60		8,119.60
Wildlife Habitat	144	1,456.72		1,456.72
GRAND TOTALS	7,272	$76,039.84	$1,804,000.00	$1,880,927.36

FIGURE 4 SCHEDULE OF OBJECTIVES 1-20

Objective No.	FY 1982 1	2	3	4	FY 1983 1	2	3	4	FY 1984 1	2	3	4	FY 1985 1	2	3	4
1. Soil surveys	***	***	***	***	***	***	***	***								
2. Soil survey plan									***							
3. Erosion projects										***	***	***	***			
4. PL 566									***	***	***	***				
5. Weed control loans	***	***	***													
6. TORDON projects	***	***	***	***	***											
7. Agland preservation program						***	***	***	***	***	***	***				
8. Supervisor workshops		***	***			***	***			***	***			***	***	
9. CD projects tour				***	***							***	***			
10. Procedure manual														***	***	***
11. Planning guidelines			***	***	***											
12. Range potential	***	***														
13. Range loan program					***	***	***	***					***	***	***	***
14. Update range publication									***	***	***	***				
15. Wind erosion ordinance	***	***	***	***	***	***	***	***								
16. Conservation easements									***	***	***					
17. Water quality proposals	***	***	***	***	***	***	***	***								
18. Water quality funding						***	***	***	***	***	***	***	***	***	***	***
19. Flexible cropping												***	***	***	***	***
20. Riparian management													***	***		
TOTAL HOURS BY FISCAL YEAR QUARTERS	**FY 1982** 1	2	3	4	**FY 1983** 1	2	3	4	**FY 1984** 1	2	3	4	**FY 1985** 1	2	3	4
	391	439	505	448	467	452	452	402	452	472	472	507	531	529	458	295

PART B: OBJECTIVES INFLUENCED BY CDD

The following objectives will ultimately be achieved by other state and federal resource agencies and organizations.

The Conservation Districts Division will influence and work cooperatively with conservation districts, agencies, and organizations to carry out objectives 21-55 by preparing justification statements and presenting written and verbal testimonies. The Division will meet periodically with the heads of state branches and with the state branches of federal agencies in Montana, as well as annually with the heads of federal agencies in Washington, D.C.

In some cases the Conservation Districts Division will obtain support from the conservation districts, the Montana Association of Conservation Districts, state and federal agencies, legislators, and the public. The division may sponsor projects for CDs or inform CDs of programs they may wish to sponsor. The Conservation Districts Division may assist with writing, reviewing or revising policy changes, job descriptions, and project or program guidelines.

CONCERN: SOIL EROSION

21. To increase the amount of funds available for conservation projects through the Agricultural Conservation and Stabilization Service Long Term Agreement cost-share programs from $3,500 per year to $5,000 per year, per contract.

22. To increase the total amount of funds available to Montana from Long Term Agreement cost-share programs the CDD will request USDA to make a 15 percent increase in funds. Long Term Agreement funds available for Fiscal Year 1981 total $564,000 for the State of Montana.

23. To plant and improve shelterbelts for the prevention of soil erosion and the provision of wildlife habitat. The CDD will encourage CDs to participate in the Montana Interagency Tree or Shrub Improvement Study (MITOSIS) to further the use of shelterbelts. The MITOSIS program is cooperatively run by the Forestry Division of DNRC, the SCS, and other forestry agencies. The program is intended to find superior tree and shrub species for field barrier and environmental plantings. CDs can assist in collecting superior seed stock and finding cooperators interested in running a planting test area.

24. To apply soil and water conservation to the land. The CDD will encourage CDs to annually review their conservation plans with their cooperators.

CONCERN: IRRIGATION WATER MANAGEMENT

25. To provide increased assistance to irrigation operators for irrigation water management training and irrigation systems improvement. The CDD will support efforts of the Montana Cooperative Extension Service and SCS to provide increased irrigation assistance; also, the CDD will assist the Cooperative Extension Service to publicize their irrigation scheduling models.

26. To improve efficiency information systems the CDD will encourage interested CDs to develop their ability to test and monitor irrigation efficiency including delivery and application structures and equipment.

CONCERN: FOOD AND FIBER PRODUCTION

27. To increase the use of renewable energy in agricultural production. The CDD will encourage CDs to find cooperators interested in developing small-scale, decentralized energy production projects. The cooperator or CD with such a proposed project can apply for a grant from the Alternative Renewable Energy Sources Program of the Energy Division of DNRC.

28. To further research on the application of energy conservation in Montana agricultural production. The CDD will encourage the Montana Cooperative Extension Service to carry out research in agricultural energy conservation and work towards application of such research.

29. To decrease costs of agricultural production the CDD will encourage the CDs and SCS to design conservation plans to reduce long range costs (lower costs by reducing consumption of synthetic fertilizers and fossil fuels).

CONCERN: WATER SUPPLY

30. To make loans for water development projects the CDD will work with the Water Resources Division of DNRC to carry out the water development loan portion of the Water Development Program.

31. To assist the 14 CDs along the Yellowstone River with their water reservation implementation plans. The CDD will work with the Water Resources Division of DNRC to carry out the water reservations implementation portion of its Water Development Plan. Two engineers will be available to assist CDs beginning September 1981. The implementation plans are to be submitted to the Board of Natural Resources and Conservation by December 15, 1983.

32. To assist 25 CDs in the Clarks Fork and Missouri River Basins to research water availability, and if possible, to secure water reservations; the CDD will work with the Water Resources Division, DNRC to carry out this objective.

CONCERN: NOXIOUS WEEDS

33. To increase the amount of information available on weed control the CDD will support funding of the Montana Experiment Station for research and education projects on weed control in Montana, with special emphasis on biological controls.

34. To increase efficiency of local weed control programs the CDD will encourage CDs to coordinate weed control activities with their local weed districts.

CONCERN: CHANGES IN LAND USE

35. To increase support of farm and ranch organizations and real estate agencies for preservation of prime agricultural land. The CDD will encourage CDs to incorporate preservation of agricultural land in their education and information programs and to emphasize reaching farm organizations and real estate agencies.

CONCERN: RURAL DEVELOPMENT

36. To expand "outreach capacity" by 15 percent for education in estate planning. The CDD will request the Montana Cooperative Extension Service to carry out this objective.

37. To facilitate a comprehensive statewide resource conservation planning effort the CDD will encourage the Resource Conservation Advisory Council to pursue such an effort.

CONCERN: RANGELAND IMPROVEMENT

38. To distribute range management information to 1,000 additional range operators, the CDD will request that the Montana Cooperative Extension Service, the Montana Experiment Station, the SCS, and the Forestry Division of DNRC provide this information annually.

39. To prevent operators from drawing federal payments on classes of land unsuitable for cropping, the CDD will request USDA to make a policy change. These federal payments include Agricultural Conservation Program cost-sharing funds, federal crop disaster payments, and federal crop insurance.

CONCERN: RECREATION

40. To provide recreational access the CDD will encourage the Department of Fish, Wildlife, and Parks (DFWP), USDA Forest Service, and the Bureau of Land Management to enter into cooperative agreements with landowners in exchange for their services according to the terms of the agreement.

41. To promote greater involvement of private recreation enterprises in DFWP's statewide comprehensive outdoor recreation planning, the CDD, with the cooperation and assistance of SCS and the Montana Association of Conservation Districts, will provide DFWP with information on private enterprise outdoor recreation activities.

CONCERN: WATER QUALITY

42. To identify water quality problems on streams that require inventories according to CD's water quality management plans. The CDD will request the SCS, DHES, and the Department of Fish, Wildlife, and Parks to give accelerated assistance to these stream inventories.

CONCERN: SALINE SEEP

43. To make more assistance available in saline seep prevention and control, the CDD will request the SCS to provide more trained technical assistance for control and prevention of saline seep.

44. To cost-share saline seep control practices, the CDD will work with Agricultural Stabilization and Conservation Service on the National Farm Program to allow implementation of flexible-cropping systems without penalty to the farmer. A cost-share program for well drilling and other field work necessary to develop a reclamation plan for individual farmers will be considered.

45. To support locally operated saline seep control programs such as the Triangle Saline Seep Program.

CONCERN: FLOODING

46. To increase watershed protection and flood prevention by increasing funding for PL566 projects. The CDD will support efforts of Congress to increase the PL566 program.

47. To reduce damages caused by flooding the CDD will encourage CDs to work with their local planning boards to enforce local floodplain regulations.

48. To improve or protect wildlife and fish habitat the CDD will, with the Department of Fish, Wildlife, and Parks (DFWP), set up a joint CDD and DFWP committee. This committee will investigate and recommend methods for providing incentives to landowners for habitat improvements or protection. Based on committee recommendations pilot programs will be established, and these programs will be supervised by the committee.

49. To develop fish and wildlife habitat plans in conjunction with farm conservation plans, the CDD will request the SCS and CDs to ask all landowners to consider developing habitat plans in conjunction wih their conservation plans.

50. To develop fish and wildlife improvement projects and educational programs, the CDD will request the CDs to give fish and wildlife improvement projects high priority in their planning activities.

CONCERN: FORESTRY

51. To make contact with the small forest landowner through additional state foresters working on the Forestry Assistance Programs of the DNRC Division of Forestry. The CDD will support efforts to obtain these additional state foresters.

52. To adopt forestry practices for the CDs' water quality management plans, the CDD will assist CDs to use the practices outlined by the Department of Health and Environmental Sciences. The CDD will obtain the DNRC Forestry Division's approval of the forestry practices prior to recommending them to the CDs.

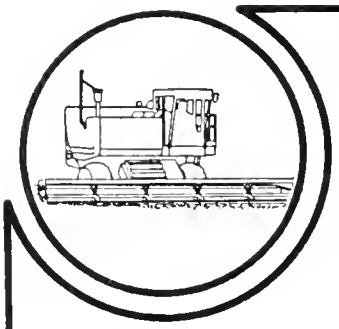
CONCERN: MINING

53. To carry out a stream reclamation project on the Prickly Pear drainage for abatement of acid mine drainage problems, the CDD will support efforts of the Montana Department of State Lands to use Abandoned Mine Land Program money for the Prickly Pear project. Also the CDD will request that the CDs support this project and recommend use of these funds on other mine drainage projects identified in some of the CDs' water quality management plans.

54. To assist CDs with land use conversion and aquifer disruption problems with coal strip mining. Emphasis will be placed on preserving prime, unique, and statewide important farmland (see Changes in Land Use section), and determining effects of proposed coal strip mining on aquifers.

CONCERN: FISH HABITAT

55. To provide adequate in-stream flows for fish habitat, the CDD will encourage fish and wildlife management agencies to work with CDs and irrigators to research the feasibility of constructing off-stream storage sites for joint irrigation and in-stream flow needs.



IV. CONCLUSION

The preservation and wise use of Montana's water, soil, farmlands, forestlands, and wildlife habitat are all part of a complex responsibility. All these resources are interdependent and the duties of those who work to preserve them are also closely related. The management of Montana's diverse resources on private land is being accomplished by members of conservation districts working with each other and with state and federal agencies.

In this plan, the Conservation Districts Division has brought together the needs expressed by many farmers and ranchers across the state. They indicated what their problems were and how they thought they might be solved. CD members then worked with the CDD to develop a plan that would help to correct these problems. This plan provides a guide for tasks directed at specific objectives, with projected time lines and costs for each. Incentives and assistance are needed from cooperating agencies for the accomplishment of some of these objectives.

Where such cooperation was needed, the possible sources of funding and other support are indicated. In many cases local CD members can achieve the objectives themselves. The Conservation Districts Division believes that this plan will prove to be a useful tool for the members of Montana's conservation districts.

APPENDIX A

Policies of the Conservation Districts Division

The policies of the Conservation Districts Division are consistent with those set forth in MCA 76-15-102, which provide for the preservation of Montana's resources, and specifically are to:

1) provide for the control and prevention of soil erosion;
2) provide for the prevention of damage by flood water and sediment;
3) provide for the conservation, development, utilization, and disposal of water;
4) provide for the protection and development of fish and wildlife habitat;
5) protect and improve water quality from nonpoint sources of pollution;
6) provide for the optimum quality and quantity of rangeland;
7) preserve Montana's prime, unique, and important farmlands; and
8) protect streambeds.

Duties of the Conservation Districts Division

The Conservation Districts Division is bound by MCA 76-15-105 to carry out the duties specified for the Department of Natural Resources and Conservation, as follows:

1) offer assistance to the supervisors of conservation districts carrying out their programs;
2) keep the supervisors of each of the districts informed of the activities of all other districts and promote an interchange of advice and experiences between the districts, and cooperation between them;
3) coordinate the programs of the conservation districts by advice and consultation;
4) secure the cooperation and assistance of the federal government and of agencies of Montana in the work of the districts;
5) disseminate information throughout the state concerning the activities and programs of the conservation districts; and
6) encourage the formation of districts in areas where their organization is desirable.

APPENDIX B

RCA WORKSHEET NO. 1
Resource Concerns and Problems

Field Office Use

(01)

State Code _____ State Name _____ Recorder _____

County Code _____ County Name _____ Date _____

Location Code _____ Field Office _____

District Name _____

Items of Concern	Concern/ Problem Codes		Degree of Concern Major	Degree of Concern Minor
I. Food and Fiber Production	01	01		
a. Loss of production acres	01	02		
1. Cropland	01	03		
2. Pastureland	01	04		
3. Rangeland	01	05		
4. Forestland	01	06		
b. Energy consumption	01	07		
c. Increased costs	01	08		
d. Brush encroachment	01	09		
e. Other	01	10		
II. Land Use	02	01		
a. Effect of public facilities	02	02		
b. Urban sprawl	02	03		
c. Migration to rural areas	02	04		
d. Public ownership	02	05		
e. Soil limitations	02	06		
f. Land ownership	02	07		
g. Leased land farming	02	08		
h. Growing recreation demand	02	09		
i. Other	02	10		
III. Flooding	03	01		
a. Economic impact	03	02		
b. Environmental impact	03	03		
c. Other	03	04		
IV. Wetlands	04	01		
a. Loss	04	02		
b. Degradation	04	03		
c. Other	04	04		
V. Prime, Unique, Important Farmland	05	01		
a. Conversion to irreversible uses	05	02		
b. Overlying, strippable, mineral resources	05	03		
c. Other	05	04		

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Items of Concern	Concern/ Problem Codes		Degree of Concern Major	Degree of Concern Minor
VI. Water Management	06	01		
a. Irrigation	06	02		
1. Water availability	06	03		
2. Efficiency of systems	06	04		
3. Efficiency of application	06	05		
4. Erosion	06	06		
5. Costs	06	07		
6. Use of municipal or industrial effluent	06	08		
7. Depletion of ground water	06	09		
8. Degradation of water quality	06	10		
9. Degradation of aquatic habitat	06	11		
10. Salinity	06	12		
11. Other	06	13		
12. Impact on fish and wildlife	06	15		
13. Maintenance of facilities	06	16		
VII. Water Supply	07	01		
a. Increased demand	07	02		
b. Sediment and related pollutants	07	03		
c. Lack of water	07	04		
d. Depletion of ground water	07	05		
e. Surface storage	07	06		
f. Other	07	07		
VIII. Soil Erosion	08	01		
a. Water erosion	08	02		
1. Cropland	08	03		
2. Pastureland	08	04		
3. Forestland	08	05		
4. Rangeland	08	06		
5. Urban land	08	07		
6. Mined land	08	08		
7. Effect on productivity	08	09		
8. Sediment damages	08	10		
9. Shore erosion	08	11		
10. Impacts on water quality	08	12		
11. Costs of control	08	13		
12. Effects on aquatic habitat	08	14		
13. Scouring on floodplain	08	15		
14. Deposition on floodplain	08	16		
15. Other	08	17		

(01)
State Code _____
County Code _____
Location Code _____

RCA WORKSHEET NO. 1
Resource Concerns and Problems

Items of Concern	Concern/ Problem Codes		Degree of Concern Major	Degree of Concern Minor
VIII. Soil Erosion (continued)				
b. Wind erosion	08	18		
1. Cropland	08	19		
2. Rangeland	08	20		
3. Coastal areas	08	21		
4. Mined land	08	22		
5. Effect on productivity	08	23		
6. Sediment damages	08	24		
7. Costs of control	08	25		
8. Impact on air quality	08	26		
9. Loss of windbreaks	08	27		
10. Other	08	28		
IX. Mining	09	01		
a. Water quality	09	02		
b. Land use conversions	09	03		
c. Sediment damage	09	04		
d. Aesthetics	09	05		
e. Reclamation	09	06		
f. Effect on wetlands	09	07		
g. Effect on fish and wildlife	09	08		
h. Other	09	09		
X.. Land Disposal of Organic Waste	10	01		
a. Municipal sludge	10	02		
b. Health hazard	10	03		
c. Pollution of environment	10	04		
d. Public acceptance	10	05		
e. Lack of available disposal sites	10	06		
f. Other	10	07		
XI. Recreation	11	01		
a. Increased demand	11	02		
b. Lack of diversity	11	03		
c. Operation and maintenance of existing areas	11	04		
d. Lack of facilities	11	05		
e. Other	11	06		
XII. Wildlife Habitat	12	01		
a. Effect of farm and forestry cultural practices	12	02		
b. Land use conversions	12	03		
c. Loss of habitat through overgrazing	12	04		
d. Other	12	05		

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(01)
State Code _____
County Code _____
Location Code _____

RCA WORKSHEET NO. 1
Resource Concerns and Problems

Items of Concern	Concern/ Problem Codes		Degree of Concern Major	Minor
XIII. Fish Habitat	13	01		
a. Impact of sediment and related pollutants	13	02		
b. Availability	13	03		
c. Effect of human activity	13	04		
d. Channel modifications	13	05		
e. Other	13	06		
XIV. Forestry (Non Federal Land)	14	01		
a. Land use conversions	14	02		
b. Lack of markets	14	03		
c. Erosion control	14	04		
d. Overgrazing	14	05		
e. Reforestation (need for)	14	06		
f. Other	14	07		
XV. Water Quality	15	01		
a. Sediment and related pollutants	15	02		
b. Eutrophication	15	03		
c. Livestock wastes	15	04		
d. Irrigation impact	15	05		
e. Other	15	06		
XVI. Air Quality	16	01		
a. Industrial pollution - effect on vegetation	16	02		
b. Dust from wind erosion	16	03		
c. Other	16	04		
XVII. Rural Development	17	01		
a. Ownership - Land held for development, absentee, etc.	17	02		
b. Viability of family, farm/ranch	17	03		
c. Under employment	17	04		
d. Lack of availability for agricultural products	17	05		
e. Population migration	17	06		
f. Adequacy of facilities and services	17	07		
g. Other	17	08		
XVIII. Environmental	18	01		
a. Lack of habitat for threatened and endangered species.	18	02		
b. Loss of historical and archaeological sites	18	03		
c. Loss of visual resources	18	04		
d. Loss of natural and scenic areas	18	05		
e. Loss of riparian vegetation	18	06		
f. Loss of wildlife migration routes	18	07		
g. Loss of windbreaks	18	08		
h. Other	18	09		

Items of Concern	Concern/ Problem Codes		Degree of Concern Major	Degree of Concern Minor
XIX. Socio-Political Concerns	19	01		
a. Effective local leadership	19	02		
b. Adequate legislative authorities	19	03		
c. Effective use of existing authorities	19	04		
d. Adequate local capital	9	05		
e. Capability of local units of government to meet resource need	9	06		
f. Need for cooperative arrangements with other units of government	19	07		
g. Other	19	08		
XX. Other (list)	20	01		
a.	20	02		
b.	20	03		
c.	20	04		
d.	20	05		
e.	20	06		
XXI. Drainage	21	01		
a. Effect of excess wetness on crop selectivity and productivity	21	02		
b. Impact of drainage problems on cultural operations and use of energy	21	03		
c. Need for surface drainage systems	21	04		
d. Need for water table control	21	05		
e. Effectiveness of existing systems	21	06		
f. Lack of ditch and structural maintenance	21	07		
g. Cost of installation and maintenance	21	08		
h. Impact on fish	21	09		
i. Impact on wildlife	21	10		
j. Other	21	11		

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APPENDIX C

Formation of Resource Conservation Advisory Council

The Governor of the State of Montana was given the power to set up the council by the Administrative Procedures Act (MCA 2-15-122); the 12 council members are appointed by the Governor and serve at his pleasure.

Purpose of Resource Conservation Advisory Council

The purpose of the Resource Conservation Advisory Council is to:

(1) Advise and assist the Department of Natural Resources and Conservation on all programs and activities relating to conservation entities, including programs and activities relating to the:
   (a) formation, organization, and operation of districts;
   (b) control and prevention of soil erosion;
   (c) conservation, development, utilization and disposal of all water resources;
   (d) prevention of floodwater and sediment damages;
   (e) conservation, protection, restoration, and proper utilization of soil and vegetative resources of the state;
   (f) development of the rangeland resource program;
   (g) cooperation with other state and federal agencies, and citizen groups, in land uses related to natural resources and environment.

(2) (a) Advise and assist the Department in approving applications for assistance under PL-566 (Watershed Act) prior to submission to the Board of Natural Resources and Conservation;
   (b) Advise and assist the Department in approving applications for assistance under the Food and Agriculture Act for Resource Conservation and Development (RC&D) projects prior to submission to the Board of Natural Resources and Conservation;

(3) Recommend changes, if necessary, in existing state or federal laws or regulations to protect and conserve the soil, vegetation and water resources of the state;

(4) Provide a liaison between the Department, conservation districts, grazing districts, the Montana Association of Conservation Districts, and the Montana Association of State Grazing Districts.

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APPENDIX D

Meetings, Attendance, and Distribution of Questionnaires.

SCS Work Area	NUMBER OF MEETINGS RCA	Other	Total	ATTENDANCE RCA	Other	Total	USE OF QUESTIONNAIRES Handed Out	Returned
1	17	9	26	230	88	318	1,836	275
2	27	26	53	466	318	784	3,305	166
3	28	25	53	487	357	844	6,311	393
4	14	9	23	143	55	198	2,573	282
5	33	46	79	474	541	1,015	5,680	752
6	18	24	42	102	243	345	3,315	456
SCS State Off.	11	7	18	90	157	228	0	0
TOTAL	148	146	294	1,992	1,759	3,732	23,020	2,324

APPENDIX E

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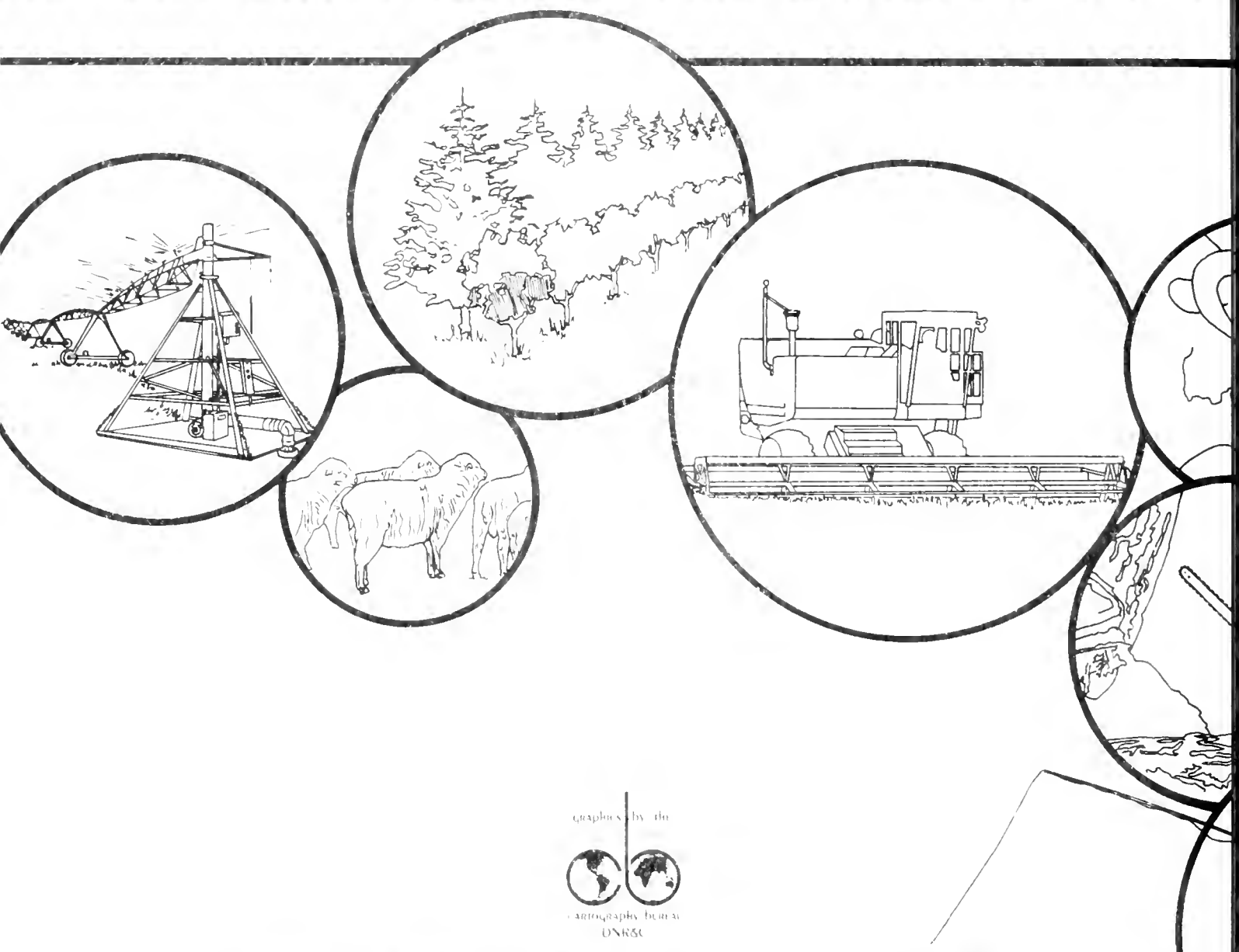

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